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The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

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PUBLICATIONS

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(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I **Birds of South Carolina**, by Arthur Trezevant Wayne.
Pp. XXI + 254. *Price: paper, \$2.75; cloth, \$3.25.*

II **Catalog of the Mollusca of South Carolina**, by William G. Mazÿck. Pp. XVI + 39. *Price: paper, 50 cents.*

III **Birds of the City of Charleston**, by Herbert Ravenel Sass. *In preparation.*

INDEX TO VOLUMES VI-X

- Abastor erythrogrammus*, IX 9
 ABBOTT, C. C., IX 39
Acacia, VI 28, 48: *farnesiana*, VI 48
 Academy of Natural Sciences of Philadelphia, VIII 11-12
Accipiter velox, VIII 25
Acer negundo, VIII 59: *rubrum*, VI 41, 59: *saccharinum*, VI 41
 Achroite, IX 36
 Adder, Spreading, X 38
 Adder's-tongue, X 18
 ADGER, ELIZABETH, VIII 53
Aegialitis meloda, VIII 25; X 46
Aesculus parviflora, VIII 60
 After School Club, VIII 12
Agalinanae, X 8
 AGASSIZ, LOUIS, IX 31
 Agricultural exhibits, VI 2; VII 32; tea culture, VI 14
 Agricultural Experiment Stations, Alabama, VIII 12: Cornell University, VIII 12: Florida, VIII 12: Georgia, VIII 12: Kentucky, VIII 12: Louisiana, VIII 12: Maine, VIII 12: Mississippi, VIII 12: North Carolina, VIII 12: Tennessee, VIII 12
 Agricultural Society of South Carolina, VI 2; VII 14
Ailanthus, VI 38
Air sponsa, IX 45
 AKELEY, CARL E., IX 56; X 14, 62
 Alabama collection of eocene fossils, IX 39
 "Albert coal", VI 26
 Albertite, VI 26
Alcyonium digitatum, VII 59
 ALLAN, MRS. JAMES, VIII 53
 ALLAN, SUSIE, IX 22; X 8
 ALLAN, WILLIAM S. JR., VIII 9, 33
 Alligator, IX 46
Alsine, VIII 62
Aluco pratincola, VI 50; VIII 27
 Amber, VI 27; IX 37; X 9: Baltic, IX 19
Amblystoma talpoideum, VI 35
Ambrosia artemisiifolia, VIII 62: *trifida*, VIII 62
 American Association for the Advancement of Science, IX 30-31; X 11
 American Association of Museums, VI 4, 5; VII 3; VIII 4, 5; IX 12; X 3: Directory of American Museums, by P. M. REA, VI 59; VII 7-8: Proceedings, X 52-55
 American Book Company, VIII 12
 American Forestry, X 11
 American Museum of Natural History, VI 5; X 28, 52, 56
Ampelopsis quinquefolia, VIII 62
Amphiuma means, VI 35
Anas rubripes, VIII 23
Anchistia virginica, X 22
 ANDERSON, A. P., VIII 56
Andropogon virginicus, VIII 61
 Anemone, Rue, VIII 60
Anemonella thalictroides, VIII 60
Anhinga anhinga, VIII 22; X 45
 Anise-tree, VI 28
Anolis carolinensis, VI 35
Anosia berenice, X 34: *plexippus*, X 34
Anthus rubescens, VIII 33
Antrostomus carolinensis, VIII 28: *vociferus*, VIII 28
Aphyllon uniflora, VIII 61
 Apple, May, VIII 60
Aralia spinosa, VIII 60
Arbacia punctulata, X 31
 Arbutus, Trailing, VIII 60
 Archeological collections, VIII 39; IX 24, 39-40, 55; X 9-10: North American Indian, VII 56; IX 59
 Archeological exhibits, VIII 6; X 10: Egyptian, X 49-51: Babylonian clay tablets, by P. M. REA, X 25-26: Egyptian mummy, by L. M. BRAGG, X 49-51: The Stone Age, by L. M. BRAGG, IX 57-59
Archilochus colubris, VII 15; VIII 28; IX 62
Arctomys monax, VII 38, 61
 Argonauta, X 58
Argynnis diana, X 34
Arisaema triphyllum, VIII 61
 Art, Municipal catalog of, by P. M. REA, VII 57-58; VIII 3, 14: reg-

ister, VII 32, 57: *see also* City Art Commission
Asarum arifolium, VIII 61 17
 Asbestos exhibits, VII 40, 55; VII
Ascyrum cruz-andreae, VIII 61
 Ash, VI 38; VIII 59
 ASHLEY, GEORGE H., IX 31, 32
 Ashley Hall, VII 8; VIII 3, 17, 35; IX 14
Asio flammeus, VIII 27
 Asphalt, VI 25-26; IX 19, 36-37; X 9
Asplenium dentatum, X 18: *filix-foemina*, X 23: *platyneuron*, X 22: *ruta-muraria*, X 22: *trichomanes*, X 22
 Association of First Grade Teachers, VII 63
 Aster, VIII 61, 62
Aster patens, VIII 61; *puniceus*, VIII 62
Asterias forbesii, VII 59
Astrangia, VII 59
Atalopedes huron, X 43
 AUDUBON, J. J., VI 50, 58; VIII 40; IX 60
 AUDUBON, J. J. and BACHMAN, J., *Quadrupeds of North America*, VII 24, 38, 61
 Audubon and Bachman Loan Exhibit, VII 17-22, 24; VIII 13, 15-16; IX 41: by P. M. REA, VII 17-18
 AUDUBON, M. ELIZA, VII 24
 Audubon plates, VI 59; VII 6, 38, 48, 61-62; VIII 13: Audubon pictures, by L. M. BRAGG, VII 61-62
 Audubon Society, VIII 51, 52; IX 3, 10, 43
 Auk, The, VI 8, 50; VII 6; VIII 12, 22, 23, 25, 26, 27, 28, 65; IX 12, 61; X 13, 26
 Australian Museum, VIII 12
Aythya collaris, IX 20
 Azalea, Flame, VIII 60
Azolla caroliniana, X 24
 Babylonian Clay tablets, X 25-26
Baccharis hamifolia, IX 43
 BACHMAN, JOHN, VI 58; VII 52; IX 31, 53, 60; X 12, 18, 19, 22, 23, 24, 48: *American entomology*,

VI 7-8: *Catalog of phaenogamous plants and ferns*, X 17, 18: *Catalog of the plants of Charleston*, IX 10: *see also* Audubon-Bachman Loan Exhibit
 BACHMAN, J. and AUDUBON, J. J., *Quadrupeds of North America*, VII 24, 38, 61
 BACOT, WALTER R., IX 55
 BAILEY-LEBBY COMPANY, VIII 7
 Bamboo, VI 14
Baptisia alba, VIII 61
 BARKER, WILLIAM, VI 49
 BARNHART, J. H., *Life and work of Otto Kuntze*, IX 65-68
 BARRE, H. W., VIII 56
 BARTRAM, WILLIAM, VII 10
Basilarchia astyanax, X 35: *disippus*, X 35
 Bats, VIII 9: *Florida Free-tailed*, VIII 38
 Bay, Red, VI 15, 28
 BEADLE, C. D., VIII 43
 Bear, Polar, VIII 9, 66
 Beaufort Civic League, X 47
 BEE, SANDIFORD, VIII 53
 Beech, VIII 59
 Bellwort, VIII 60
 BENNETT, JOHN, VII 18, 25, 37, 39; VIII 2, 16; IX 25
 Bennett School, VII 8
Betula, sp. VIII 59
 BIEDMA, VI 62
 Bigelow's Medical Botany, VII 32
 Big-eye, Short, VI 34
 "Big Laurel", VI 15: *see also* Magnolia
Bignonia capreolata, VIII 61
 Biological survey, VIII 13-14, 14, 15, 42; IX 8-10; X 11-12: card catalog, IX 8: notebook, VI 9: record forms, VI 8; IX 10: amphibians, VI 35; VII 6: birds, VI 8, 9, 10, 29-33, 44, 49-52, 57-58; VII 5, 7, 15-16, 22-23, 49-52, 60; VIII 8, 13, 19-25, 26, 27-33, 34, 39-41, 50; IX 9, 20-21, 24, 42-45, 52-54, 60-63, 69-71; X 11, 26-28, 45-46: butterflies and moths, VII 6; VIII 65-66; IX 69; X 33-36, 41-43, 63: ferns, VII 40; X 17-24: fishes,

VI 8, 34; VIII 9-10, 50; X 39: fungi, VII 39; VIII 4, 13-14: insects, VI 8; IX 9: lizards, VI 35: mammals, VII 6: marine invertebrates, VII 23, 58-59; VIII 10, 14; X 31: mollusca, VI 6: plants and trees, VI 9, 12, 16-20, 36, 37-43; VII 6; VIII 48, 54-57, 59-63, 64; IX 9-10, 22; X 7-8, 11-12, 47: reptiles, VII 6: sea shells, VII 59: snakes, VII 6, VIII 39; IX 9; X 38-39: spiders, VI 8; VII 6; IX 9: tree survey of the city, VI 8, 37-43; VII 46-47

Biology, Department of, *see* College of Charleston

Birch, VIII 59

BIRD, WILLIAM M., VI 8; VIII 53

BIRD, WM. M. & Co., VII 55; VIII 7

Bird, bulletins, X 30-31, 48: chart, X 30: collections, VIII 38; IX 6; X 10: collections (local), VII 4; VIII 8: labels, IX 23: lantern slides, IX 71-72: nests and eggs, VI 58-59: nests and eggs (local), VII 4-5, 31, 52-53; VIII 8-9; IX 7, 9: photography, IX 54: pictures, *see* Audubon plates: protection, VIII 51-53; IX 10: records, VIII 8; X 11: skins, VII 5; VIII 8: specimens lent to schools, VII 71; X 30: traveling exhibits, IX 6

Birds, transferred to the new building, VII 5: American Merganser, by CASPER S. CHISOLM, VII 22-23: American Scoter and Ring-necked Duck, by L. M. BRAGG, IX 20-21: Arkansas Kingbird, by EDITH E. SHARPE, X 26-28: Audubon's Shearwater on Sullivan's Island, by E. B. CHAMBERLAIN, VII 49-50: Autumn migration notes for 1913, by F. M. WESTON, JR., IX 60-61: Beaks and bills of birds, by MRS. P. M. REA, VI 10: Bird-life in the North Carolina mountains, by F. M. WESTON, JR., VIII 63: Bird notes, by H. R. SASS, VIII 40-41: Bird notes and records,

by E. B. CHAMBERLAIN, VI 51 IX 69-70: Birds seen on the Thanksgiving Day field trip, by F. M. WESTON, JR., VII 60; VIII 15: Birds of South Carolina—supplement, by L. M. BRAGG, VIII 19-25, 27-33: Birds which arrive in April, by L. M. BRAGG, X 32: Bob-white breeding in the city, by H. R. SASS, VI 49: Breeding birds of Heron Island, by E. A. WILLIAMS, IX 42-43: Breeding habits of the Ruby-throated Hummingbird, by E. B. CHAMBERLAIN, IX 61-63: Breeding of the Barn Owl, by B. R. CHAMBERLAIN, VI 50: Breeding warblers of the coast region, by F. M. WESTON, JR., VII 40; VIII 15: Brown Creeper, by F. M. WESTON, JR., IX 71: Cancer in Double-crested Cormorant, by K. M. LYNCH, IX 70: Cardinal singing in winter, by H. R. SASS, VIII 34: Carolina rail in Charleston, by E. A. HYER, VIII 26: Catesby as an ornithologist, by P. M. REA, VIII 15: Christmas week in the country, by L. M. BRAGG, VIII 15: Cliff Swallow in the city, by H. R. SASS, VI 49-50: Common spring birds, by L. M. BRAGG, X 32: Contents of stomach of a Double-crested Cormorant, by L. W. McGRATH, IX 70-71: Digestion of birds, by MRS. P. M. REA, VI 10: Duck hawk, by B. R. CHAMBERLAIN, VII 48: Effect of hurricane of 1911 on bird life, by H. R. SASS, VII 63-64: European birds, by E. A. WILLIAMS, VIII 63: Fall migration in the city, by H. R. SASS, VI 50: Fall migration records, by F. M. WESTON, JR., VII 50-52: Field trip of Section B, by J. I. WARING, JR., VII 60: Food of birds, by MRS. P. M. REA, VI 10: Fox Sparrow in the city, by H. R. SASS, VIII 34: Further bird notes and correc-

tions, by F. M. WESTON, JR., VI 44: Further observations on Heron Island, by L. M. BRAGG, IX 43: Greater Shearwater, Sooty Shearwater, and Wilson's Petrel, by L. M. BRAGG, VII 50: Hummingbird in December, by P. M. REA, VI 10: Hummingbird in winter, by H. R. SASS, VII 15-16: Kentucky warbler, by F. M. WESTON, JR., VIII 50: Life and work of Bachman, by Mrs. P. M. REA, VIII 15: Nesting habits of birds, by L. M. BRAGG, X 28: New migration records, by F. M. WESTON, JR., IX 53-54: Ornithological work of Audubon and Bachman, by H. R. SASS, VIII 15: Ornithological work of Wayne, Loomis, and their contemporaries, by F. M. WESTON, JR., VII 40; VIII 15: Parts of a bird, by L. M. BRAGG, VIII 49: Pigeon Hawk in winter, by JULIAN MITCHELL, JR., VIII 26, 65; IX 12: Piping Plover, by E. B. CHAMBERLAIN, X 46: Preliminary survey of birds of the coast region, by P. M. REA and F. M. WESTON, JR., VI 29; Supplement, by F. M. WESTON, JR., VI 29-33: Prothonotary Warbler and Grinnell's Water Thrush, by E. A. HYER, X 28: Rail family, by F. M. WESTON, JR., VI 10: Red-head, by E. A. WILLIAMS, VIII 26: Red-throated Loon in Charleston harbor, by P. M. REA, VIII 39-40: Ring-necked Duck, by F. S. HANCKEL, JR., VII 16: Seagulls of Charleston harbor, by L. M. BRAGG, VIII 15: Secessionville heronry, by H. R. SASS, VIII 51-53; IX 43: Shoveller, by JULIAN MITCHELL, JR., VII 23: Skeleton of birds, by P. M. REA, VI 10: Solitary Sandpiper, by F. M. WESTON, JR., IX 69: South Carolina birds at home in other lands, by L. M. BRAGG, IX 56: South Carolina birds in

the Arctic regions, by ALEXANDER SPRUNT, JR., IX 64, 71: South Carolina birds in Arctic regions and on Bird Rock, by L. M. BRAGG, X 14: South Carolina birds in the Bahamas, by C. S. CHISOLM, IX 64, 72: South Carolina birds on Bird Rock and the mouth of the St. Lawrence, by B. R. CHAMBERLAIN, IX 64, 71: South Carolina birds in Florida, by E. A. WILLIAMS, IX 64, 72: South Carolina birds in and on the way to New England, by L. M. BRAGG, IX 64; X 14: South Carolina birds in Panama, by E. B. CHAMBERLAIN, IX 64; X 28, 32: South Carolina birds in South America, by MABEL WEBBER, A. L. SLOAN, J. B. CHISOLM, and CHARLES COLSON, IX 64: South Carolina birds in the West Indies, by F. M. WESTON, JR., IX 64: Spring bird observations, by F. M. WESTON, JR., IX 44-45: Stilt Sandpiper, by E. B. CHAMBERLAIN, IX 52-53: Summer bird records, by F. M. WESTON, JR., VI 29: Virginia rail, by C. S. CHISOLM, VI 51: A week on Bull's Bay, by C. S. CHISOLM, IX 54: White Pelican, by P. M. REA, VI 57-58: Wild life in a city garden, by H. R. SASS, VII 64: Wild music, by H. R. SASS, VII 64: Wilson's Phalarope, by E. B. CHAMBERLAIN, VI 51: Winter notes on the Night Herons, by E. B. CHAMBERLAIN, X 45-46: Winter record for Anhinga, by C. S. CHISOLM, X 45: Winter record for the Osprey, by B. R. CHAMBERLAIN, X 46: Yellow-bellied Sapsucker and Summer Tanager, by B. R. CHAMBERLAIN, IX 63

Bird-Lore, VIII 12
 Bittern, VI 30: Least, VI 58
 Bitumen, VI 25-26; IX 37
 "Black lead", VI 24
 Bloodroot, VIII 60
 Blue curls, VIII 61

"Blue Peter", VI 31
 Bluet, VIII 62
 Bobolink, *see* Ricebird
 Bob-white, VIII 25: breeding in the city, VI 49
Bombicilla cedrorum, VIII 31, 40-41
Bombyx (Sericaria) mori, VII 28
 Booth collection, VIII 37; IX 34
Borrichia frutescens, IX 43
 Boston Museum of Fine Arts, VII 32, 57; VIII 14
 Botany, X 55: class, VIII 58, 64; IX 13, 24, X 13, 14, 29, 32, 40, 56: collections, IX 46, 55, 65; X 7-8, 47: ferns, VII 40; IX 40: field trips, VIII 64; IX 24; X 32, 40, 64: flower table, VI 12: museum grounds, VI 28: nomenclature, IX 67, 68: publication record form, VIII 48: records, IX 46; X 11, 17, 47: records of Prof. Lewis R. Gibbes, IX 23: tree table, VI 12: trees of the city, VI 36, 37-43, 56-57; VII 46: Bibliography of the sylvia of South Carolina, by L. M. BRAGG, VI 61-68; VII 9-15; VIII 14: Botanical field work by L. M. BRAGG, VIII 54-57: Common oaks in winter, by L. M. BRAGG, VI 16-20: Concerning the popinac, by E. L. H. WILLIS, VI 48: Flora about Clemson College, by A. B. MASSEY, VIII 59-62: Further observations on Heron Island, by L. M. BRAGG, IX 43-44: Life history of a tree, by P. M. REA, VI 11: Local ferns, by L. M. BRAGO, VII 32; VIII 15: Museum herbaria, by L. M. BRAGG, VIII 43-49: Plant life of Hartsville, S. C., by W. C. COKER, IX 22: Planting the Museum grounds, by D. S. MARTIN, VI 13-16: Preliminary list of ferns, by L. M. BRAGG, X 17-24: Street trees of Charleston, by L. M. BRAGG, VI 37-43: Weeds of Charleston by L. M. BRAGG, X 14: Winter buds, by L. M. BRAGG, VI 11
Botrychium biternatum, X 18: ob-

liquum, X 18: *virginianum*, X 18
 BOWDISH, B. S., VIII 21, 22
 Box-elder, VI 38, 40
 Boy scouts, VII 32; X 32
 Bracken, X 21-22
 BRAGG, BARBARA K., VII 24; IX 47
 BRAGG, LAURA M., VI 9; VII 6, 8, 60, 63; VIII 10, 11, 15, 17, 22, 24, 29, 30, 35, 36, 42, 58, 64; IX 9, 13, 14, 22, 23, 42, 46, 51, 56, 72; X 2, 7, 10, 13, 14, 18, 19, 22, 23, 24, 29, 35, 37, 42, 43, 47, 55, 63: appointed librarian 1909, VI 3: appointed curator of books and public instruction, VII 24: elected president of Natural History Society, IX 63: lectures, VIII 16, 17: American Scoter and Ring-necked Duck, IX 20-21: Audubon pictures. VII 61-62: Beach shells after the hurricane, VII 54: bibliography of the *Sylvia* of South Carolina, VI 61-68; VII 9-15; VIII 14: Bird eggs and nests, VII 52-53: Birds of South Carolina, VIII 19-25, 27-33: Birds which arrive in April, X 32: Botanical field work, VIII 54-57: Christmas week in the country, VIII 15: Classification of books on fine arts, IX 12: Common oaks, VI 10: Common oaks and pines, VI 10: Common oaks in winter, VI 16-20: Common spring birds, X 32: Description of Audubon-Bachman Loan exhibit, VII 17: VIII 15: Egyptian mummy, X 49-51: Further observations on Heron Island, IX 43-44: Greater Shearwater, Sooty Shearwater, and Wilson's Petrel, VII 50: Local ferns, VII 32; VIII 15: Marine shells of South Carolina, VII 48; VIII 15: The Museum herbaria, VIII 43-49: Nesting habits of birds, X 28: News notes from the Museum, IX 12: Parts of a bird, VIII 49: Preliminary list of ferns, X 17-24: Red-bellied snake, VIII 39: Sea-gulls of

- Charleston Harbor, VIII 15:
 Shell collection, VII 53: Silk
 culture—a retrospect, VII 35–37,
 39: Silkworm culture, VII 28–
 31; VIII 15: South Carolina
 birds in Arctic regions and on
 Bird Rock, X 14: South Carolina
 birds at home in other lands, IX
 56: South Carolina birds in and
 on the way to New England, X
 14: Stone Age exhibit, IX 57–59:
 Street trees of Charleston, VI
 37–43: Weeds of Charleston, X
 14: West Indian hurricanes, VII
 41–47: What the Museum offers
 the schools, VIII 67–74; IX 12:
 Winter birds, VI 11
 BRAINERD, EZRA, VII 24
 Brake, Cliff, X 22
 BRANFORD, PRISCILLA, VIII 10
 Briar, Sensitive, VIII 61
 British Museum, VIII 46
 Brooklyn Institute of Arts and
 Sciences, VIII 65
 BROTHER, EDGAR L., VIII 7
Broussonetia papyrifera, VI 41
 "Brown-coal", VI 23
 Buckeye, Small, VIII 60
 BUFFON, G. L. LÉC., Oviparous
 quadrupeds and serpents, IX 47
Bufo americanus, VI 35
 Bufflehead, VI 29, 30
 BULL, STEPHEN, VI 65
 Bullfrog, VI 35
 Bunting, Indigo, VI 44
 BURTON, E. H., VII 16; IX 21
 "Butcher Bird", *see* Shrike, Log-
 gerhead
Buteo borealis, VIII 25, 33
Butorides virescens, VI 50; IX 43
 Butterflies, Collection of, IX 55:
 Exhibition cage, X 63: Local
 moths and butterflies, by JESSE
 SHARPE, X 56, 62: *Cholippe*
alicia, by E. R. JENNINGS, IX 69:
 Preliminary list of, by JESSE
 SHARPE, X 33–36, 41–43
 Button bush, VIII 62
 Button weed, VIII 62
 Buttonwood, VI 38, 41
 "Cabio," VIII 50
 CALHOUN, F. H. H., VII 63
 CALHOUN, PATRICK, VI 8,
Calpodes ethlius, X 43
Calycanthus floridus, VIII 60
Camellia japonica, VI 14: *thea*, VI
 14
 Camphor tree, VI 14
 Cancer, in Cormorant, IX 73
 Canfield collection, IX 34–35
Capsella bursa-pastoris, VIII 62
 CARADEAUX, IX 28
 Carbon collection, VII 4; IX 17–18,
 19, 36–37; X 8–9
 Cardinal, VII 51; VIII 34
 Cardinal flower, VIII 62
Cardium muricatum, VII 54
 Carolina Floral Company, X 3
 Carpet weed, VIII 62
Carpinus caroliniana, VIII 59
 CARRINGTON, WARING P., VI 8
Carya, sp. VIII 59
 Cassena holly, VI 15, 28
Cassia nictitans, VIII 61
 Catalpa, VI 38, 42
Catalpa catalpa, VI 42
 Catbird, VI 44; VIII 9, 33
 Catch fly, VIII 61, 62
 CATESBY, MARK, VI 67–68; VII 9,
 10, 13; VIII 15
Catopsilia eubule, X 41
 Cat-tail, VIII 62
Ceanothus americanus, VIII 62
 Cedar, VI 28
 Cedarbird, VIII 31
Celtis mississippiensis, VI 40: *occi-*
dentalis, VI 40; VIII 59
Cephalanthus occidentalis, VIII 62
 Cephalopod molluscs, X 57–60
Cerastium viscosum, VIII 62
Cercis canadensis, VIII 60
Certhia familiaris americana, IX 61
Chaerophyllum procumbens, VIII 62
Chaetura pelagica, IX 60
 CHAMBERLAIN, B. R., VI 10, 32, 44,
 47, 52, 58; VIII 8, 10, 20, 21, 24,
 27, 28, 29, 31, 33, 40; IX 44, 52,
 61, 71; X 14, 26, 27: Breeding of
 Barn owl, VI 50: Duck hawk,
 VII 48: South Carolina birds
 on Bird Rock and the mouth
 of the St. Lawrence, IX 64, 71:
 Winter record for Osprey, X

46: Yellow-bellied sapsucker and Summer tanager, IX 63
 CHAMBERLAIN, E. B., VI 10, 47, 52; VIII 8, 10, 19, 20, 22, 24, 29, 33; IX 44, 60, 61; X 26, 27, 30; Audubon's Shearwater on Sullivan's Island, VII 49-50: Bird notes and records, VI 51: Breeding habits of the Ruby-throated hummingbird, IX 61-63: Piping plover, X 46: Recent bird notes, IX 69-70: South Carolina birds in Panama, IX 64; X 28, 32: Stilt sandpiper in South Carolina, IX 52-53: Wilson's phalarope, VI 51: Winter notes on Night heron, X 45-46
 CHAMBERLAIN, L. T., IX 39
 CHAPMAN, A. W., X 21, 23
Charadrius dominicus, VIII 25
 Charcoal, VI 22
 Charleston Ad. Club, VI 59-60; VII 2, 8, 31, 63; VIII 3
 Charleston Chamber of Commerce, VII 2; IX 32
 Charleston City Council, VI 1, 2; VII 2, 63; VIII 3, 5; IX 2, 5, 27, 32, 49, 50; X 1, 2, 4, 5, 61
 Charleston City Gazette, VI 45
 Charleston Consolidated Railway and Lighting Company, X 3
 Charleston County Teachers' Association, VIII 67
 Charleston Courier, VI 46; VII 33-34; IX 29
 Charleston Daily Courier, VIII 47
 Charleston Evening Post, VII 7; VIII 14; IX 12; X 13
 Charleston Fish and Oyster Co., VIII 10
 Charleston Library Society, VI 61, 68; VII 11, 13, 14, 25, 37; IX 26, 27; X 2
 Charleston Museum, VI 5, 7, 53-56; VII 8, 62; VIII 54, 55, 57, 65; X 16, 25, 27, 30, 55: accessions (current), VI 6, 58, 59, 68; VII 4, 24, 32, 38-39, 48, 55, 61-62, 63; VIII 6, 7, 8, 9, 10, 38-39; IX 7, 21-22; 23-24, 34-40, 45-46, 47, 55, 65; X 8, 10, 31, 47, 48: accessions (early),

VI 45-46: administration, VI 2; VII 3; VIII 4-5; IX 3-4; X 3: affiliated institutions, VIII 17 (Medical College), 35, 42, 57-58; IX 32, 52; X 61: annual reports of director, 1909, VI 1-10; 1910, VII 1-8; 1911, VIII 1-17; 1912, IX 1-14; 1913, X 1-16: building, VI 1, 5-6; VIII 6; IX 4-6, 49-50; X 4-7: calendars for 1914, April, X 32; May, X 40; November, X 56; December, X 64: curators, VI 3, 6; VIII 4; IX 32: exhibits, VI 1; VII 4; VIII 3: finances, VI 1, 2; VII 2, 31-32, 63; VIII 2-4, 15; IX 1, 2-3; X 3-4: fire protection, VIII 66: grounds, VI 28; VII 3; VIII 5-6: headquarters of American Association of Museums, X 52: herbarium, IX 22, 46: membership, VI 5; VII 2; VIII 2, 5; IX 1, 2, 15; X 4: one hundred and fortieth anniversary, X 2-3: public inspection, VIII 35-36; IX 3: publications, VI 1, 9, 59; VII 7-8; VIII 14; IX 11-12; X 12-13: relation to schools, VIII 67-74: review of progress, VIII 1; X 1-2: scope, VII 1-2: staff, VI 1, 3, 4; VII 3, 24; VIII 4, 16, 57-58; IX 3, 32, 47, 56; X 3, 55: workshop, VI 2-3; VIII 4-5; IX 51; X 7: Community and the Museum, by P. M. REA, VI 53-56: One hundred and fortieth anniversary, by P. M. REA, IX 25-32, 41-42: Progress in installation, by P. M. REA, VIII 35-38: The summer in retrospect, by P. M. REA, IX 49-52: What the Museum offers the schools, by L. M. BRAGG, VIII 67-74
 Charleston Museum, History of, VII 1; IX 25-32; X 1-2
 1773. Origin and original prospectus, VII 18, 25-27; VIII 2, 16
 1824. Appeal for building, VII 33-34
 1826. Description and accession list, VI 45-46
 1852. Invitation to opening in

- College of Charleston, VI 35; VII 6
 1908. Invitation to opening of Library, VI 35; VII 6
 1913. Anniversary, IX 25-32, 41-42
- Charleston Natural History Society, VI 9, 37, 48, 51, 52, 59; VII 6, 8, 31, 40, 46, 53; VIII 3, 9, 10, 14, 14-15, 20, 35, 36, 41, 50, 64, 65-66; IX 2, 3, 7, 12, 12-13, 14, 42; X 2, 4, 13-14, 27, 33, 55: constitution, VI 9: bird contest, IX 72; X 28-29, 40: botany class, *see* Botany: boy scouts, VII 32: class in making bird skins, X 63, 64: division into two sections, VI 9: election of officers, VIII 63; IX 56, 63, 64; X 62, 63: field trips, VI 10, 11, 36, 60; VII 8, 48, 55, 58-60; VIII 42, 49, 63, 64; IX 13, 24, 56, 64, 72; X 14, 29, 32, 40, 47-48, 56, 62, 64: graduation of Section B, VII 55; VIII 15, 58; X 63: honorary members, X 62: meetings, VI 11; VII 17, 32, 40, 48, 55, 60; VIII 15, 49, 58, 63; IX 24, 56, 63-64, 71-72; X 13-14, 28-29, 32, 40, 56, 62-63, 64: membership, VI 10; VII 8; VIII 15, 63; IX 13, 64; X 13, 63: The Natural History Society, by P. M. REA, VII 58-60
- Charleston Natural History Society, lectures, talks, etc., BRAGG, L. M., VI 10, 11; VII 32, 48, 60; VIII 15, 49; IX 56, 64, 71; X 14, 28, 32: CHAMBERLAIN, B. R., VII 48; IX 64, 71: CHAMBERLAIN, E. B., IX 64; X 28, 32: CHISOLM, C. S., IX 64, 72: CHISOLM, J. B., IX 64: COLSON C., IX 64: HYER, E. A., X 56, 62: MATTHEW, G. F., IX 24; X 13: REA, P. M., VI 10, 11; VII 60; VIII 15; IX 13, 64; X 13, 62, 64: REA, MRS. P. M., VI 10: SASS, H. R., VI 11: SCOTT, J. H., X 13-14: SHARPE, J., X 56, 62: SLOAN, A. L., IX 64: SPRUNT, A., JR., IX 64, 71: WARING, J. I. JR., VII 60: WEBBER, M., IX 64: WESTON, F. M., JR., VI 10, 11, 36; VII 40, 60; VIII 15, 63; IX 13, 64: WILDER, B. G., VIII 49; IX 13: WILLIAMS, E. A., VIII 63; IX 13, 64, 72
- Charleston Nature Study course, VIII 70, 71, 72, 73; IX 23
- Charleston News & Courier, VII 7, 63; VIII 14, 52, 65; IX 10, 12; X 13
- Charleston Park Commission, VI 13, 40; VII 3, 44; VIII 12
- Charleston Retail Merchants' Association, VII 2
- Chaulelasmus streperus*, VIII 23
- Chen hyperboreus hyperboreus*, IX 60: *h. nivalis*, IX 60
- Cherry laurel, VI 15, 38, 41-42: in hurricane of 1911, VII 44
- Cherry, Wild, VIII 60
- CHICHESTER, MRS. J. E., VIII 39
- Chicora College, IX 38
- Children's Museum of Boston, X 52
- Children's Museum of Brooklyn, X 52-53
- Chimaphila maculata*, VIII 61
- China tree, VI 38, 42: in hurricane of 1911, VII 45
- CHISOLM, C. S., VI 44, 59; VII 6; VIII 8, 9, 12, 13, 20, 22, 23, 24, 38, 40; IX 21, 45; X 63, 64: American merganser, VII 22-23; VIII 8: South Carolina birds in the Bahamas, IX 64, 72: Virginia rail, VI 51: A week on Bull's Bay, IX 54: Winter record for Anhinga, X 45
- CHISOLM, J. B., VIII 38; IX 24: South Carolina birds in South America, IX 64; X 33
- Chlorippe alicia*, IX 69; X 35: *celtis*, X 35
- Chorophilus nigrilus*, VI 35
- "Christmas-berry", VI 15; IX 43
- Chrysanthemum leucanthemum*, VIII 61
- Chuck-will's-widow, VI 31; VIII 28
- Cinchona*, IX 66
- Circus hudsonius*, VIII 25
- Cistudo carolina*, VII 56
- City Art Commission, VII 32, 57,

58; VIII 3, 14
Clangula clangula americana, VIII 23
 CLEAVES, HOWARD H., IX 54
Clematis viorna, VIII 62
 Clemson College, VIII 55, 57: herbarium, VIII 56: Flora in vicinity of, VIII 59-63
 Clover, Buffalo, VIII 62: Japan, VIII 61: Red, VIII 62
 Club-moss, Fox-tail, X 24: Little, X 24
Cnemidophorus sexlineatus, VI 35
 Coal, IX 36; X 9: anthracite, VI 23-24, 25; IX 36: bituminous, VI 23-24, 25; IX 36: formation, VI 21-25: graphitic anthracite, IX 36: lignitic, IX 36
Coccyzus americanus, VIII 28: *erythrophthalmus*, VIII 28
 Cockle, VII 54: Corn, VIII 62
 Cocklebur, VIII 62
 COFFIN, H. E., IX 42, 47, 56; X 3
 COFFIN, MINNIE, IX 46; X 8
 Coke, VI 24
 COKER, W. C., VIII 12, 54; X 19, 22, 23, 24: Garden of Andre Michaux, X 17: Flora of the Isle of Palms, X 17: Plant life of Hartsville, S. C., VIII 54; IX 22; X 17
 COLEMAN, S. L., VII 50
Colias eurytheme var. *keewaydin*, X 42
Colinus virginianus, VIII 25
 College of Charleston, VII 1, 6; VIII 3, 17, 35, 36; IX 8, 31, 50, 52; X 7, 15, 20: Department of biology and geology, IX 2, 14; X 1: Magazine, VIII 12
 COLSON, IDA, VIII 10
 COLSON, C., IX 24; X 33: South Carolina Birds in South America, IX 64
Colymbus auritus, VIII 21
 Conch, Channelled, VII 54, 59: Pear, VII 54, 59
 Conchology, VII 59: collections, VI 6; VII 4, 63; X 9: exhibits, VII 31, 53; VIII 10; X 9: guide book to sea shells, X 13: Beach shells after the hurricane by L.

M. BRAGG, VII 54: Marine shells of South Carolina, by L. M. BRAGG, VII 48; VIII 15
 Confederate Home College, X 32, 40
 Contributions from the Museum, VI 1, 2; VII 1; VIII 11; IX 11-12; X 9: Birds of South Carolina, by A. T. WAYNE, VI 9, 49, 51, 57, 59, 59 (review); VII 7, 17, 22, 49, 50, 51, 52; VIII 13, 19; IX 9, 11, 20, 45, 52-53, 60, 61; X 45, 46: Catalog of the Mollusca of South Carolina, by WM. G. MAZYCK, VI 6; VII 4, 7, 53; VIII 14; IX 11, 47 (review); X 12, 57: Birds of the City of Charleston, by H. R. SASS, VII 7
 Converse College, herbarium, VIII 46, 47, 55, 56
 Coot, VI 31, 44; VIII 24
 Copal, VI 27; IX 37; X 9
 Copperhead, VIII 9; X 38
 Coral, Brain, VII 63: Gorgon, VII 59
 Cormorant, Double-crested, diseases of, IX 70, 71
Cornus florida, VIII 59
Coturnicops noveboracensis, VIII 24
 Cowbird, VI 29
 Crab-eater, VIII 50
 Cranesbill, VIII 62: Wild, VIII 60
Crataegus, sp., VIII 60
Creciscus jamaicensis, VIII 24
 Creeper, Brown, IX 61, 71: Virginia, VIII 62
 Crossbill, VI 30, 32; VIII 29: Red, VI 44
Croton glandulosa, VIII 62
 CROUCH, EMEVE, X 47
 Crow, Fish, VI 30, 32: Audubon plate, VII 61
 Cryptogams, Herbarium of, VI 36
Cryptoglaux acadica, VIII 27
 Cuckoo, Black-billed, VIII 28: Yellow-billed, VIII 28
 Cucumber, Indian, VIII 60
 Cud weed, VIII 61
 CUMMINGS, MRS. ST. J., VIII 39
 Curlew, Hudsonian, VII 60; VIII 25
 Curtiss herbarium, IX 40; X 20
 CURTIS, MOSES A., VIII 48
Cynodon dactylon, VIII 61

Daisy, Ox eye, VIII 61
 Dandelion, VIII 62
 Davenport Academy of Sciences,
 X 53, 54
 Davey Tree Company, VII 45
 Davidson College, IX 39
 D'AYLON, LUCAS VASQUEZ, VI
 61-62, 63
 DeBRAHM, W. G., VII 9-10
Decumaria barbata, VIII 61
Dendroica caerulea, VIII 32: *cor-*
onata, VIII 32: *discolor*, VIII 33:
kirtlandii, VIII 32: *magnolia*,
 VIII 32: *palmarum*, VIII 32:
palmarum hypochrysa, VIII 32:
pennsylvanica, VIII 32: *tigrina*,
 VIII 32
 Deseret Museum, VIII 12
Desmanthus, VI 48
Desmodium, sp., VIII 61
 DE SOTO, FERDINAND, VI 62
 DE VERRAZZANO, JOHN, VI 62
 DICKINSON, McLEOD, VIII 38
 DILL, FRANCES, IX 46; X 12
 DILL, PAULINE, X 8
Diodia teres, VIII 62: *virginiana*,
 VIII 62
Dione vanillae, X 34
Diopatra cuprea, VII 59
 DITMARS, R. L., X 39
 Diver, Great Northern, *see* Loon
 Dogwood, VI 38: Flowering, VIII 59
Dolichonyx oryzivorus, VIII 28; IX
 53
 Dove, Mourning, IX 45: Ground,
 VI 31; IX 44
 Dowitcher, IX 54
 DRAYTON, JOHN, VII 11-13
Dryopteris floridana, X 23-24: *nove-*
boracensis, X 23: *patens*, X 23:
thelypteris, X 23
 Duck, Black, VIII 23; IX 21: Gad-
 wall, VIII 23, 38: Golden-eye,
 VIII 23: Greater scaup, VI 30:
 Lesser scaup, VI 30; IX 21:
 Redhead, VIII 8, 23, 26: Ring-
 necked, VII 16; VIII 23; IX 20-
 21, 22: Ruddy, VI 29, 30, 58:
 Shoveller, VII 23; VIII 38; IX
 45: Widgeon, VIII 38: Wood,
 IX 45
 DUFF, E. A., IX 45

Dumetella carolinensis, VIII 33
 DURANT, E. W., JR., VIII 14
Diospyros virginiana, VIII 59
 Eagle, Golden, VII 38-39: Audubon
 plate, VII 38
 EATON, D. C., X 21
 Echini, X 31
 Educational Museum, St. Louis,
 X 53
 Educational work, VI 6, 7, 9; VII 5,
 32, 63; VIII 3-4, 10, 16, 17, 35;
 IX 1, 3; X 29-30: What the
 Museum offers the schools, by
 L. M. BRAGG, VIII 67-74: *see*
also Public Instruction
 Eel, Ditch, VI 35: Snake, VI 34
 EGGLESTON, W. W., X 20
 Egret, VI 31: American, IX 43:
 Snowy, VI 31, 51; VIII 52; IX
 10, 43, 44; X 47-48: Snowy,
 protection of, VIII 51
Egretta candidissima, VIII 51; IX
 43, 44
 Elder, VIII 62: Box, VIII 59
 Electric Supply Company, X 3
 Elisha Mitchell Scientific Society,
 VIII 12
 ELLIOTT, STEPHEN, VIII 43; IX 28:
 Botany of South Carolina and
 Georgia, VIII 43: herbarium,
 VII 24; VIII 43; X 8, 12
 Elliott Society, IX 31: proceedings,
 VII 13; X 17, 20
 Elm, VI 38; VIII 40-41: American,
 VI 38-39: Slippery, VI 38-39:
 Wing, VI 38-39: in hurricane of
 1911, VII 45
 Embryology, Department of, *see*
 Medical College: Lecture on, by
 P. M. REA, X 62, 64
 ENGLEHART, G. P., VII 63
 ENGLISH, GEORGE L., IX 55
Epargyreus tityrus, X 43
Epigaea repens, VIII 60
Erigeron bellidifolius, VIII 60
Eriobotrya, VI 14
 Ethnology exhibits, IX 6
Eudamus proteus, X 43
Eumeces quinelincatus, VI 35
Euonymus americanus, VIII 60
Euptoleta claudia, X 34
Eustrongylus tubifex, IX 71

Exhibition cases, VI 2; VIII 7, 9;
IX 6-7; X 10, 55

Exhibits at the Museum, VIII 36-37: anti-tuberculosis, VI 5: asbestos, VII 40; VIII 7: Audubon-Bachman, VII 17-22, 24, 61; VIII 13, 15-16; IX 41: carbon, VI 21-27; VII 4; IX 19: Egyptian mummy, X 49-51: flower table, VI 12: living animals, IX 45-46; X 31: live snakes, VI 35; VIII 9, 38; IX 46; X 38-39: marine shells, VII 53: meteorological instruments, VI 7: nests and eggs of local birds, VII 4-5, 52-53: Piedmont collection of minerals, X 44: silk culture, VII 28-31, 32, 35-37, 39; VIII 7-8, 16; IX 41: tea culture, VI 14: tree table, VI 12

Exhibits, Traveling, VIII 5, 7, 16, 57, 70-72; IX 12, 23; X 14-15, 29-30, 56: Babylonian clay tablets, X 25-26: birds, IX 6: butterflies, X 63: iron and steel, VIII 72; X 15

Fagus americana, VIII 59

Falco columbarius, VIII 26, 27: *peregrinus anatum*, VIII 25

Falcon, Peregrine, VII 55

Farancia abacura, VIII 39; IX 9; X 39

Ferns, Preliminary list of, by L. M. BRAGG, X 17-24

FICKEN, JOHN F., IX 42; X 2, 48

FICKEN, MRS. JOHN F., IX 42; X 2

FIELD, G. W., VI 36; VIII 12

Field & Stream, VIII 12

Filaria (histrichis?), IX 71

First grade teachers' association, VIII 16

Fishes, Angler, by P. M. REA, X 39: Snake eel, Sculpin, and Short big-eye, by P. M. REA, VI 34: Sun-fish, and Crab-eater, "cabbio", by P. M. REA, VIII 50

Five finger, VIII 62

FLADGER, W. A., VI 58

Florida caerulea, IX 42

Flycatcher, Crested, VI, 32; IX 69

FOLLIN, LOUISE, X 29-30

FORD, F. C., IX 46

FORREST, JOHN, VI 7

Fossils, IX 38-39: Alabama eocene, IX 39: Booth collection, VIII 37; IX 34: Maryland tertiary, IX 34, 39: Mississippi eocene, IX 39: North Carolina tertiary, IX 39: Virginia tertiary, IX 39

FOSTER, JAMES, VIII 20, 39

Fragaria virginiana, VIII 62

Fraxinus, sp., VIII 59

Fregata aquila, VIII 22

Frigate bird, VII 38; VIII 22: Audubon plate, VII 38

Frog, Green tree, VI 35: Leopard, VI 35: Southern tree, VI 35: Swamp tree, VI 35: eggs for distribution, IX 21

FROST, MRS. THOMAS, IX 46

Fulgar canaliculata, VII 54, 59: *carica*, VII 54, 59

Fulica americana, VIII 24

FULMAR, V. L., VII 23; VIII 10

Fungi, *see* Biological survey and Botany

GADSDEN, JOHN B., X 31

Gadwall, VIII 23, 38

Galax aphylla, VIII 60

Gallinula galeata, VIII 24

Gallinule, Florida, VI 44; VIII 24

GARDEN, ALEXANDER, VII 9-10

Garnet, North Carolina, VIII 38

GARICK, JAMES P., JR., VIII 27

Gas, Natural, IX 36

Gavia immer, IX 53: *stellata*, VIII 21; IX 53

Gebia, VII 59

Gelsemium sempervirens, VIII 61

General Asbestos and Rubber Company, VII 40, 55; VIII 7

Gentian, Blue, VIII 60

Gentiana quinquefolia, VIII 61

Geological Surveys, Georgia, VIII 12: Tennessee, VIII 12: Virginia, VIII 12

Geology, Alabama eocene fossils, IX 39: Booth collection of invertebrate fossils, VIII 37; IX 34: Canfield collection of zeolites, IX 34-35: carbon collection, VII 4; IX 17-18, 19, 36-37; X 8-9: catalog, VI 35: collections,

- VI 6, 12; VII 4, 32; VIII 6, 38; IX 7, 23-24, 55; X 8-9: Department of, *see* College of Charleston: exhibits, VI 12, 21-27; VII 31; VIII 6-7; IX 7, 17-19: gems and precious stones, IX 19, 38; X 9: Graves collection, IX 34: Maryland tertiary fossils, IX 34, 39: Mississippi eocene fossils, IX 39: North Carolina tertiary fossils, IX 39: phosphate minerals, IX 17: Piedmont collection, VI 6, 35; VII 39; VIII 7; IX 17-19, 37-38, 39; X 9, 44: records, IX 33-34; X 44: Russian collection, IX 17, 33: Shepard collection of phosphates, IX 33: Sloan collection, IX 38, 39, 40; X 9, 44: state exhibit, IX 19: tertiary coastal plain fossils, X 9: Virginia tertiary fossils, IX 39: Department of geology and mineralogy, by D. S. MARTIN, IX 33-40: The carbon collection, by D. S. MARTIN, VI 21-27: Fossils of St. John, N. B., by G. F. MATTHEW, X 13: Geology of the region about Charleston, by P. M. REA, IX 64: Progress in department of geology, by P. M. REA, X 44: Progress on the mineral collections, by D. S. MARTIN, IX 17-19
- Geranium carolinianum*, VIII 62: *masculatum*, VIII 60
- Gerardia, VIII 61
- Gerardia grandiflora*, VIII 61: *ten-uifolia*, VIII 61
- Geyserite, VII 32
- GIBBES, EMMA, IX 23, 46; X 12, 20, 21
- GIBBES, LEWIS R., VI 35; VII 5-6; IX 23, 31, 46; X 12, 19-20, 21, 22: herbarium, X 47: portrait, VII 32: Botany of Edling's Bay, X 17: Catalog of the phaenogamous plants of Columbia and vicinity, VII 5
- GIBBES, MARIA H., VI 35; VII 5, 6; X 47
- Gibber, Wild, VIII 61
- Ginkgo, VI 28
- Ginkgo biloba*, VII 15
- "Glass snake", VI 35
- GLEN, JAMES, VII 9-10
- Gnaphalium polycephalum*, VIII 61: *purpureum*, VIII 61
- Golden-eye, VIII 23
- Goldenrod, VIII 62
- Goldfinch, VI 44
- Goose, Greater snow, IX 60: Lesser snow, IX 60
- GOURDIN, CAMILLA, IX 64
- GRACE, JOHN P., IX 42; X 2
- GRACE, MRS. JOHN P., IX 42; X 2
- Grackle, Boat-tailed, VI 58
- Grahamite, VI 26
- Grapefruit, VI 28
- Graphite, VI 24, 25; VII 4; IX 36
- Grapta interrogationis*, X 34-35
- Grass, Bermuda, VIII 61: in hurricane of 1911, VII 45: Blue-eyed, VIII 61: Crab, VIII 61: Johnson, VIII 62: Pepper, VIII 62: Yellow star, VIII 60
- GRAVES, F. P., VII 4; VIII 7; IX 34
- Gray herbarium, IX 22; X 11, 18
- Grebe, Horned, VI 30; VIII 21: Pied-billed, VI 51
- Grosbeak, Blue, VI 44, 59; VII 53; VIII 30: Rose-breasted, VIII 30: Audubon plate, VI 59, VII 6
- Ground Hog, Audubon plate, VII 38, 61
- Guide books to nature study, X 12-13: to sea shells, X 13
- Guiraca caerulea*, VI 59; VIII 30
- Gull, Bonaparte's, VI 30: Herring, VI 44; VIII 21: Laughing, VI 30, 44; VIII 21; IX 54: Ring-billed, VIII 21
- Gum, Black, VIII 59: Sweet, VIII 59
- Hackberry, VI 38, 40; VIII 59: in hurricane of 1911, VII 46
- HAGOOD, MRS. B. A., IX 42
- Halesia tetraptera*, VIII 59
- HALSEY, ASHLEY, X 57
- HALSTED, CAPTAIN, VII 30
- HANAHAN, J. ROSS, VIII 53
- HANCKEL, F. S., VIII 38
- HANCKEL, F. S., JR., VII 63; VIII

8, 10, 20, 23, 38; IX 21, 45:
 Ring-necked duck, VII 16
 HARPER, R. M., VIII 12; X 17, 22
Harelda hyemalis, VIII 23
 HARRIS, HOPE, IX 22
 HARTT, C. F., IX 39
 Haw, Black, VIII 60
 Hawk, Cooper's, VI 29; VII 51:
 Duck, VII 48, 55-56; VIII 8,
 25: Fish, VI 31; X 46: Florida
 red-shouldered, VI 29, 31: Marsh,
 VI 31; VII 60; VIII 25: Pigeon,
 VII 61 (Audubon plate); VIII
 26, 27, 65; IX 12: Red-tailed,
 VIII 25, 33: Sharp-shinned,
 VII 50-51; VIII 25
 Hawthorn, VIII 60
Heliconius charitonius, X 34
Helinaia swainsonii, VIII 31
Helmiltheros vermivorus, VIII 31;
 IX 54
Helodromas solitarius, IX 69
Hepatica triloba, VIII 60
 Herbaria, VIII 10-11, 37, 43-49, 54-
 57, 70; X 7, 8, 12: statistics,
 VIII 48-49: storage cases, VII
 40: *see also* Clemson, Converse,
 Curtiss, Elliott, Gibbs, Kuntze,
 Porcher, Ravenel, Wallace
 Hercules club, VIII 60
 Heredity, Public lectures on, VIII
 63-64
Herodias egretta, IX 43
 Heron, Black-crowned night, VII
 61 (Audubon plate); IX 43;
 X 45-46: Green, VI 31, 50; IX
 43: Little blue, IX 42-43:
 Louisiana, VI 29; IX 42: Snowy,
see Egret, Snowy: Yellow-
 crowned night, VI 29, 31; X 46
 Heronry at Secessionville, *see* Se-
 cessionville Heronry
Hesperia montivaga, X 43
 HEWAT, ALEXANDER, VII 9-10
 Hickory, VIII 59
 HILTON, WILLIAM, VI 64, 65
 HINSON, W. G., VI 7, 68; IX 45
Hirundo erythrogaster, VIII 31; IX
 61
 HOLBROOK, J. E., VI 47: Herpetol-
 ogy, VII 24: Ichthyology, VII
 24; IX 31

HOLLAND, W. J., butterflies, IX 69:
 butterfly book, X 33, 36, 43
 Holly, American, VI 28; VIII 59:
 Dahoon, VI 68: Deciduous, VIII
 59
 HOLMES, F. S., VII 63; IX 31
 HOLMES, H. S., VII 38, 48, 61;
 VIII 13
 HOLMES, MRS. H. S., VI 59; VII 38,
 61; VIII 13
 Home and School Association, VIII
 42
 HORLBECK, ELIZABETH, IX 42
 Hornbeam, American, VIII 59
 Horse sugar, VIII 60
 HOUSE, H. D., VIII 56
 Houston Museum, VIII 12
Houstonia, VIII 61: *caerulea*, VIII
 61: *longifolia*, VIII 61: *minima*,
 VIII 62
 HOWE, O. M., VIII 9
 HOWELL, GEORGE, IX 64; X 29
 HUCHETT, MISS, VI 28
 Hummingbird, Brazilian, VI 58:
 Ruby-throated, VI 10, 30, 32;
 VII 15-16, 61 (Audubon plate);
 VIII 28: breeding habits of, IX
 61-63
 HUNTER, HENRY, IX 20
 Hurricane of August 27-28, 1911,
 VII 41-47; VIII 5-6: Effect on
 bird life, by H. R. SASS, VII
 63-64: Effect on trees in the
 city, by L. M. BRAGG, VII 44-
 47
 Hurricanes, Dates of, at Charleston
 since 1850, VII 43: West Indian,
 by P. M. REA and L. M. BRAGG,
 VII 41-47
 HYAMS, W. P., JR., VIII 10, 50
Hydranassa tricolor ruficollis, IX 42
 Hydromica, IX 36
 HYER, EDWARD A., VI 10, 32, 44,
 47; VII 16, 55; VIII 8, 10, 20,
 24, 26, 28, 29, 38; IX 24, 56; X
 56, 63: lecture on taxidermy, X
 56, 62: Carolina rail in Charle-
 ston, VIII 26: Prothonotary
 warbler and Grinnell's water
 thrush, X 28
Hyla cinerea, VI 35: *squirella* VI 35,

Hylocichla mustelina, VIII 33

Hypoxis erecta, VIII 60

Ibis, Wood, VII 52; VIII 23-24

Iconographic encyclopedia, VI 8

Icterus galbula, VIII 28-29: *spurius*, VIII 28

Ilex cassine, VI 68: *decidua*, VIII 59: *opaca*, VIII 59: *vomitorea*, VI 15; IX 43

Illicium, VI 28

Illinois State Museum, VIII 12

Impatiens fulva, VIII 62

Imperial mining institute, VIII 6

Indian pipe, VIII 61

Indian relics, VII 56; IX 59

Indigo, False, VIII 61

Industrial exhibits, asbestos, VII 40, 55; VIII 7: iron and steel, VIII 72; X 15: silk culture, VIII 7-8, 16; IX 6, 41: Silk-worm culture, by L. M. BRAGG, VII 28-31

INGRAM, DAVYD, VI 64

Innocence, VIII 61

Invertebrate exhibits, VIII 10

Invertebrates collected on the Thanksgiving Day field trip, by P. M. REA, VIII 15

Ipomoea pandurata, VIII 62: *purpurea*, VIII 62

Iron weed, Common, VIII 62

Itea, VIII 60: *virginica*, VIII 60

IZLAR, H. L., VIII 10

Jack-in-the-pulpit, VIII 61

JACKSON, R. T., X 31

Jaeger, Long-tailed, VIII 21

JENNINGS, E. R., IX 21; X 33, 34, 35, 42: Note on *Chlorippe alicia*, IX 69

JERVEY, FRANCES, VI 28

JERVEY, W. ST. JULIEN, IX 42; X 2, 3

Jessamine, Yellow, VIII 61

Jet, VII 4

John Herron Art Institute, VIII 12

Johns-Manville Co., VIII 7

JOHNSON, NATHANIEL, VII 30

Joint weed, VIII 62

Junco, VI 30, 32

Juniper, Red, VI 38

Junonia coenia, X 35

Kalmia latifolia, VIII 60

"Kauri gum", VI 27

Keasbey and Mattison Company, VII 55; VIII 7

KELLY, HENRIETTA A., VI 15; VII 24, 28, 29, 30, 62; VIII 10, 11, 12, 16: Bulletin on silk culture, VII 31

KERSHAW, JOHN, JR., VIII 20, 21, 25, 28, 30, 31, 32, 33, 53

Kindergarten training school, VIII 35

Kingbird, VI 32; VIII 28: Arkansas, X 26-28

KINGDON, GEORGE P., X 31

Kinglet, Golden-crowned, VI 33; VII 52, 60; VIII 33; IX 61: Ruby-crowned, VII 60

KLATTE, W. C., IX 47

KLINCK, ELIZABETH, VI 6, 28; VIII 8

Knights of Pythias, VI 6

Knobel plates of animals, IX 55

KOLLOCK, C. W., VII 24, 33; VIII 10, 12, 46

KUNTZE, OTTO, herbarium, X 8: life and work, IX 65-68; X 12

KUNZ, G. F., VIII 12

KURTZ, IX 31

Labels, VI 3; VII 31, 53; VIII 6-7, 8; IX 7; X 10, 44

Lagerstroemia indica, VI 42

Lamium amplexicaule, VIII 62: *purpureum*, VIII 62

LANE, T. F., VIII 9

Lanivirco solitarius, VIII 31: *s. alticola*, VIII 31

LAPHAM, SAMUEL, JR., VIII 20, 21, 39

Larus argentatus, VIII 21: *atricilla*, VIII 21: *delawarensis*, VIII 21

Laurel, Mountain, VIII 60

LAURENS, HENRY R., VIII 53

Laurocerasus caroliniana, VI 15, 41-42

Laurus camphora, VI 14

LAWSON, JOHN, VI 66-67

Leather flower, VIII 62

Lectures, by L. M. BRAGG, VII 36; VIII 15, 16: by D. S. MARTIN, VIII 16: by P. M. REA, VI 7

(meteorology), 10; VIII 63-64 (heredity); IX 13: by Mrs. P. M. REA, VIII 15; by H. R. SASS, VIII 15; by L. L. SEAMAN, X 36-37; by C. S. VEDDER, VIII 16: *see also* Charleston Natural History Society, lectures, talks, etc.

Leguminosae, VI 48

LEIDING, Mrs. H. K., VIII 38

Lepidium virginicum, VIII 62

LESSENE, D. S., VIII 20, 23

Lespedeza striata, VIII 61

LEVI, W. M., VI 58, 59; VII 5, 53; VIII 8, 12, 20, 28, 30

L'HERMINIER, FELIX, IX 27, 28-29

Librarian, VI 1, 3, 7; VII 3, 5; VIII 4: Assistant, VII 3, 5, 24; VIII 4, 11; IX 47; X 3

Library, VI 7; VII 5-6, 8, 12, 64; VIII 4, 11-13; IX 8, 51; X 10-11: accessions, VI 7, 35; VII 5, 24, 32; VIII 12, 13; IX 55: binding, VI 7; VII 5; IX 8, 51: books on nature study, X 30: catalog, VII 5; VIII 11; IX 8: exchanges, VIII 11-12; IX 11; X 11: finances, VIII 12-13: reading room, VIII 11

Libythea batmanni, X 35

Lynchnis githago, VIII 62

"Lignite", VI 23, 25, 27; IX 36; X 9

Ligustrum japonicum, VI 14

Lily, Atamasco, VIII 60

Limnoria lignorum, IX 45

Linaria canadense, VIII 61-62

Linden, VI 38, 41-42

LINEBERGER, F. L., VII 23; VIII 10

LINNAEUS, VI 67

Liquidamber styraciflua, VIII 59

Liriodendron tulipifera, VIII 59

Literary and Philosophical Society, IX 27, 30, 31

Liver-leaf, VIII 60

Lizard, Green, VI 35: Ground, VI 35: Six-lined, VI 35

Loan exhibits, *see* Exhibits, Traveling

Lobelia, Blue, VIII 62

Lobelia cardinalis, VIII 62: *puberula*, VIII 62

Lobster, Spiny, VII 23; VIII 10

Local fauna, *see* Biological survey

Local flora, *see* Biological survey

Loligo gahi, VII 23; X 57

LOOMIS, L. M., VII 40; VIII 15

Loon, VI 30; IX 53: Red-throated, VIII 21, 38, 39-40; IX 53

Lophius, X 39

Loquat, VI 14

Lorinseria areolata, X 23

Louisiana State Museum, VIII 12

LOVE, A. W., VII 56

Loxia curvirostra minor, VIII 29

LUNZ, H. A., IX 46

Lycæna comyntas, X 36

LYNCH, K. M., Cancer in Cormorant, IX 70

Lycopodium alopecuroides, X 24: *carolinianum*, X 24: *chapmanii*, X 18: *lucidulum*, X 18

Lygosoma laterale, VI 35

McBEE, M. V., VI 14

MACCLURE, IX 28

McCRADY, JOHN, IX 31

MCDERMID, ALLAN, VIII 63

MCDERMID, G. C., VI 51, 58; VIII 24, 28, 29, 30

MCDONALD, MARION, VIII 10

McGEE, HARRIET, VII 60

McGRATH, J. F., VII 48; VIII 9

McGRATH, L. W., VIII 42; IX 42, 56; X 48, 55: assistant in zoology, VIII 4: instructor in physiology and zoology, VIII 57-58; IX 3: Contents of stomach of Cormorant, IX 70-71

McINTYRE, J. P., IX 49; X 5, 6, 55

Magnolia, VI 15, 28, 38; VII 46, 47: in hurricane of 1911, VII 46

Magnolia grandiflora, VI 15; IX 62

Maiden-hair tree, VI 28

Mallard, IX 21

Man, Neolithic, IX 59: Paleolithic, IX 58

Manculus quadridigitatus, VI 35

MANIGAULT, G. E., IX 31; X 49

Manigault osteological collection, VII 31; VIII 3, 9

Man-o'-war bird, VII 38; Audubon plate, VII 38

Maple, Red, VI 38, 41; VIII 59:

Silver, VI 38, 41
Marila affinis, VII 16; IX 21:
americana, VIII 23, 26: *collaris*,
 VIII 23; IX 21
 Marine invertebrate exhibit, VIII
 10
 Marmot, Maryland, Audubon plate,
 VII 38, 61
 "Marsh Hen", VI 50
 MARSHALL, HUMPHREY, VII 10
 MARTIN, D. S., VI 7, 13, 14, 21, 58;
 VII 17; VIII 5, 7, 12, 35, 37, 38;
 IX 23-24, 55, 57; X 10, 11, 20,
 44: honorary curator in geology,
 VI 6, 12, 35; VII 4, 24, 39, 64;
 VIII 6, 65; IX 7, 33; X 8, 9, 31:
 Audubon monument in New
 York, VIII 16: Carbon collec-
 tion, VI 21-27: Planting the
 Museum grounds, VI 13-16:
 Progress on the mineral collec-
 tions, IX 17-19: reports as
 curator, IX 33-40; X 12
 Martin, Purple, VII 64
 Maryland Academy of Sciences,
 IX 34, 39
 MASSEY, A. B., VIII 56: Flora
 about Clemson College, VIII
 59-62; IX 11
 MATTHEW, G. F., Fossils of the St.
 John region, IX 24; X 13
 MAYBANK, J. F., VII 16; IX 21
 May pop, VIII 62
 MAZYCK, P. P., VI 27; VII 3, 32;
 VIII 6, 12; X 62
 MAZYCK, W. G., VII 25; VIII 10;
 IX 26, 47; X 57: honorary
 curator, VI 6; VII 4; X 9: Cat-
 alog of mollusca, VI 6, VII 4, 7,
 53; VIII 14; IX 11, 47 (review);
 X 12, 57: History of the Muse-
 um, VI 45-46
 Meadowlark, VI 29, 59
Medeola virginica, VIII 60
 Medical College of South Carolina,
 VIII 3, 17, 35; IX 30, 31; X 15:
 department of embryology and
 physiology, VIII 42, 57-58; IX
 2, 14, 52: new building, X 61
Meganostoma caesonia, X 41-42
Mellita, VII 59: *testudinata*, X 31
 MEMMINGER, E. R., VII 24, 62;

VIII 4, 10, 11, 35, 36, 37, 44, 48,
 65; IX 10, 23, 46; X 7, 8: elected
 honorary curator of fungi, VII
 39
 Memminger Normal School, VII 8
 Merganser, American, VII 22-23;
 VIII 8, 20, 22-23: Hooded, VII
 52: Red-breasted, IX 21, 54
Mergus americanus, VII 22; VIII
 22-23
 Meteorology, VI 7: Meteorological
 instruments, by P. M. REA, VI
 10: Weather forecasting, by J.
 H. SCOTT, X 13-14: Weather
 forecasting, by P. M. REA, VI
 10: West Indian hurricanes, by
 P. M. REA and L. M. BRAGG,
 VII 41-47
 Mica, IX 35, 36: "Star", IX 36
 MICHAUX, ANDRE, VI 68; VII 13-
 14: Botanical garden of, VII 13;
 VIII 42, 49
 MICHAUX, F. A., VI 20; VII 13:
 North American Sylva, VI 7:
 travels, VII 14-15
Micropalama himantopus, IX 52
 MIDDLETON, HENRY, IX 28
 MILES, J. A., VII 48, 55, 56; VIII
 8, 25
 MILES, J. A., JR., IX 46
 MILLER, W. DE W., X 28
 MILLS, R., VI 45; IX 29
 Mimosa, VI 28, 48
Mimosa illibrissin, VII 15
Mimosaceae, VI 48
 Mineralogy, *see* Geology
 Minnesota Academy of Sciences,
 VIII 12
 Mississippi eocene fossils, IX 39
 Missouri Botanical Garden, VIII 12
 MITCHELL, C. P., VIII 38
 MITCHELL, H. W., IX 55
 MITCHELL, J., VII 38; VIII 13
 MITCHELL, J., JR., VIII 22, 23, 27,
 38; IX 21: Pigeon hawk in win-
 ter, VIII 26, 65; IX 12: shovel-
 ler, VII 23
 Mitchell School, VII 35; VIII 42
Mitchella repens, VIII 61
 Mitrewort, False, VIII 60
Mniotilta varia, IX 61
 Mocassin, Copperhead or High-

land, *see* Copperhead: Water, IX 46; X 38
 "Mock orange", VI 15, 38, 42: in hurricane of 1911, VII 44
 Mockingbird, IX 44-45
Moiria atropus, X 31
Mola mola, VIII 50
 "Molly", VIII 65; X 38, 48
Mollugo verticillata, VIII 62
 Mollusca, A new squid for South Carolina, by P. M. REA, VII 23: Octopus and its relatives, by P. M. REA, X 57-60: *see also* MAZYCK, W. G., Catalog of mollusca
Monotropa hypopitys, VIII 61: *uni-flora*, VIII 61
 MOORHEAD, FRANCES, X 63
 Morning glory, VIII 62
 Morphological studies, VIII 10
 Morphology, Journal of, IX 55
 MORSE, EDNA, X 47
Morus alba, VII 28
 Moss, IX 36: European, VII 63; VIII 11: Sphagnum, VII 4
 Mouse ear, VIII 62
 MUCKENFUSS, C. H., VI 28
 Mulberry, Paper, VI 38, 41: Silk, VI 15: White, VII 28, 31: Wild, VI 38, 41
 Mullen, VIII 62
 Mummy, Egyptian, X 49-51
 Municipal catalog of art, by P. M. REA, VII 57-58
 MURDOCH, HENRIETTA, VI 8, 59; VII 6, 32; VIII 7, 12; X 11
 MURPHEY, E. E., IX 20
 Muscadine, VIII 61
 Musci, VI 36
 Museum of Comparative Zoology, VIII 12
 Museum of South Carolina, VII 33-34
 Museum grounds, VI 28: Planting of, by D. S. MARTIN, VI 13-16
 Museum herbaria, VIII 43-49; IX 22, 46
 Musical Festival Committee, VI 6
Mycteria americana, VIII 23-24
Myiarchus crinitus, IX 69
Myrica cerifera, VII 10
 Myrtle, Crepe, VI 38, 42; VII 47: Salt-water, IX 43, 44

Nannus hiemalis, IX 69
 NATHAN, CORALIE, VII 8; X 47
 National Geographic Magazine, VI 8; VII 6; VIII 12; X 11
 Naturgeschichtliche Museum, Vienna, X 53-54
 Nautilus, VIII 12: Paper, X 58: Pearly, X 58, 60
Nemathelminthes, IX 71
Neonympha eurytus, X 35: *gemma*, X 35: *sosybius*, X 35
Nephila wilderi, VIII 49
 Nettle, Dead, VIII 62: Horse, VIII 62
 NEUFVILLE, A. C., VIII 53
 New York Academy of Sciences, X 11
 New York Botanical Garden, IX 65, 68; X 8, 18, 20
 New York State Museum, VIII 12
 New York Zoological Society, VIII 12
 Night hawk, IX 54
 Night shade, IX 43
 Nonpareil, VIII 30
 North Carolina tertiary fossils, IX 39
 North Carolina Geological and Economic Survey, VI 39, 42
Numenius hudsonicus, VIII 25
 Nuthatch, Brown-headed, VIII 33
Nyctanassa violacea, X 46
Nyctea nyctea, VIII 27
Nycticorax nycticorax naevius, IX 43, 45-46
Nyssa sylvatica, VIII 59
 Oak, Black, VI 17, 19, 20, 38, 40; VIII 59: Black Jack, VI 67; VIII 59: Chestnut, VI 38, 40: Laurel, VI 17-18, 19, 20, 38, 39-40: Live, VI 17-18, 20, 38, 39-40; VII 47; IX 43: in hurricane of 1911, VII 44, 46: Poison *see* Poison oak: Post, VI 19, 20; VIII 59: Red, VI 17, 40; VIII 59: Scarlet, VI 40; VIII 59: Spanish, VI 19, 20: Turkey, VI 19, 20, 68: Water, VI 17, 18, 19, 20, 38, 40, 67: White, VI 19, 20; VIII 59: Willow, VI 17, 18, 20, 38, 40; VIII 59: Yellow, VI 40

Oakland Public Museum, VIII 12
Obolaria virginica, VIII 60
 Octopus, X 57-60
Odostomia impressa, IX 69
 Ogilby's America, VI 66
Oidemia americana, IX 20: *deglandi*, VIII 23: *perspicillata*, IX 20
 Oil, Mineral, VI 25-26; X 9
 Oklahoma State University, VIII 12
 Old-squaw, VIII 23
Olor columbianus, VIII 23
 O'NEILL, ISABEL, VIII 10; IX 22; X 8
Onoclea sensibilis, X 23
 Oologist, VIII 12
Ophichthus ocellatus, VI 34
Ophioglossum crotalophoroides, X 18: *vulgatum*, X 18
Ophisaurus ventralis, VI 35
Opoponax chironium, VI 48
 Opoponax, White, VI 28, 48: Yellow, VI 48
 Opossum, VIII 9; IX 45-46; X 31
 Oriole, Baltimore, VIII 28-29: Orchard, VIII 28
 Ornithology, *see* Birds
Osmanthus americanus, VI 62
Osmunda cinnamomea, X 19: *spectabilis*, X 19
 Osprey, VI 31; X 46
 Osteology, Manigault collection, VII 31; VIII 3, 9
 Outing magazine, VIII 12
 Oven-bird, VIII 33
 Owl, Barn, VI 50 (breeding); VIII 27: Great horned, VI 58; X 31: Saw-whet, VIII 27: Short-eared, VIII 27: Snowy, VIII 27
Oxalis violacea, VIII 60
 Ox-eye, Sea, IX 43, 44
Oxydendron arboreum, VIII 59
 Ozokerite, VI 26; IX 37
 Paleontology, *see* Fossils
 Palmetto, VI 15, 38, 41; VII 47: Cabbage, VI 64
Pandion haliaetus carolinensis, X 46
Panicum sanguinale, VIII 61
Panulirus argus, VII 23
Papilio asterias, X 42: *cresphontes*, X 42: *palamedes*, X 42: *philenor*, X 43: *troilus*, X 42: *turnus* var.

glaucus, X 42
 Parsnip, VI 48
 Partridge berry, VIII 61
Passerculus princeps, VIII 29: *sandwichensis savanna*, VIII 29
Passerella ilica, VIII 30
Passerherbulus henslowii, VIII 29: *lecontei*, VIII 29: *maritimus*, VI 52: *maritimus macgillivraii*, VI 52
Passerina ciris, VIII 30
Passiflora incarnata, VIII 62
Paspalum dilatatum, VIII 61: *laeve*, VIII 61
 Peale's Museum, IX 29
 Peat, VI 22-23, 25; VII 4; IX 36
 PEARSON, T. G., VI 50
 Pecan, VI 38
Pectinaria, VII 59
 Pectolite, IX 35
Pelecanus erythrorhynchus, VI 57-58; VIII 22: *occidentalis*, VI 57; VIII 22
 Pelican, Brown, VI 30, 57; VIII 22: Frigate, Audubon plate, VII 38: White, VI 57-58; VIII 22
Pelidna alpina sakkalina, IX 69
Pellea atropurpurea, X 22
 Pen, Spiny, VII 54
 PENNELL, F. W., IX 55; X 8
Penstemon laevigatus, VIII 62
 People's Forum, VIII 42
Persea carolinensis, VI 15, 28
 Persimmon, VI 38; VIII 59
 Petrel, Wilson's, VII 50; IX 54
Petrochelidon lunifrons, VIII 31
 Petroleum, IX 36; X 9
Phalacrocorax auritus, IX 70
 Phalarope, Northern, VI 51: Red, VI 51: Wilson's, VI 51; VIII 19, 24; IX 9
Phalaropus tricolor, VIII 24
 Pheasant, English, IX 47
Phegopteris hexagonoptera, X 24: *phegopteris*, X 24
 Philadelphia Academy of Sciences, IX 39
 PHILIPP, P. B., VIII 21, 22
 Phlogopite, IX 36
Phlox, VIII 61: *reptans*, VIII 61: *subulata*, VIII 61
 Phoebe, VI 32

Phosphate minerals, IX 17, 33
Phyciodes tharos, X 34
 Physiology, Department of, *see*
 Medical College
Phytolacca decandra, VIII 62
 Pictures lent to schools, VIII 71-72,
 74
 Piedmont collection of minerals, VI
 6, 35; VII 39; VIII 7; IX 17-19,
 37-38, 39; X 9, 44
Pieris monuste, X 41: *protodice*, X 41:
rapae, X 41
 Pigeon, White-headed, Audubon
 plate, VII 61
 "Pillywagles Plat-eye", X 31
 PINCKNEY, MRS. C. C., VII 24, 32;
 VIII 12
 PINCKNEY, ELIZABETH, VII 30
 Pine, VI 28; VIII 59: Prince's, VIII
 61: Walter's, VI 60; VII 11: Sap,
 VIII 61
 Pink, Indian, VIII 61: Moss, VIII
 61
 Pinkster flower, VIII 60
Pinna muricata, VII 54
Pinus glabra, VI 60; VII 11: *tacda*,
 VI 28; VIII 59
Piranga erythromelas, VIII 31:
rubia, VIII 31; IX 63
Pisobia maculata, VIII 25
Pituophis melanoleucus, VI 47; X 38
Plantago aristata, VIII 62: *lanco-*
lata, VIII 62: *major*, VIII 62:
virginica, VIII 62
 Plantain, Common, VIII 62: Eng-
 lish, VIII 62: Robin's, VIII 60
Platanus occidentalis, VI 41: *orien-*
talis, VI 41
 Plover, Golden, VIII 25: Killdeer,
 VI 31: Piping, VIII 25; X 46:
 Wilson's, VI 29, 31; IX 54
 Plum, Japan, VI 14; Wild, VIII 60
 Plumbago, VI 24
Podophyllum peltatum, VIII 60
 POINSETT, JOEL R., IX 28
 Poison oak, VIII 62
 Pokeweed, VIII 62
 POLLITZER, ANITA, VIII 10
 POLLITZER, CARRIE T., IX 63
 POLLITZER, MABEL, VIII 38; X 47
Polygonatum biflorum, VIII 60
Polygonum muhlenbergia, VIII 62

Polynoe, VII 59
Polypodium polypodioides, X 19:
vulgare, X 19
 Polypody, Common, X 19: Gray,
 X 19
Polypus granulatus, X 57
Polystichum acrostichoides, X 23
Poocetes gramineus, VIII 29; IX 53
 Popinac, *see* Opoponax
 Poplar, Carolina, VI 38, 39; VII 47:
 in hurricane of 1911, VII 45-46:
 Silver, VI 38
 Popular Science Monthly, VIII 12;
 X 11
Populus deltoides, VI 39
 PORCHER, F. P., X 19, 23, 24: her-
 barium, VIII 44, 48, 49; X 18:
 Medico-botanical catalog, VIII
 46
 PORCHER, L. L., IX 60
 PORCHER, P. G., JR., VI 31
 Portland (Maine) Society of Natural
 History, VIII 12
 Portland (Oregon) Art Association,
 VIII 12
Porzana carolina, VIII 24
 Porter Military Academy, VII 35
 Potato, Wild, VIII 62
Potentilla canadense, VIII 62
 Powell's South Carolina Gazette,
 VII 25
 PRATT, J. H., VII 39; VIII 7; IX 18,
 37, 38
 Prehnite, IX 35
 PRENDERGAST, MRS. F., VIII 53
 PRINCE, C. H., IX 23; X 10
 PRINGLE, MRS. E. H., IX 47
 PRINGLE, MRS. J. J., IX 46
 Printing outfit, VI 3
 Privet, Japan, VI 14; VIII 40-41
Protonotaria citrea, X 28
Prunella vulgaris, VIII 61
Prunus americana, VIII 60: *sero-*
tina, VIII 60
Pseudopriacanthus altus, VI 34
Psilotum nudum, X 24
Pteridium aquilinum, X 19, 21-22:
pseudocaudatum, X 22
 Pteridophytes, X 11
Pteris caudata, X 22: *cretica*, X 20,
 21: *serrulata*, X 19-20, 22
 Public Instruction, VI 9: VII 3, 5,

- 8, 35-36; VIII 14-15, 16, 57; IX 12-14; X 13, 32, 40, 47: lectures on heredity, VIII 63-64: What the Museum offers the schools, by L. M. BRAGG, VIII 67-74: see also Educational work
- Puffinus gravis*, VII 50; VIII 22: *griseus*, VII 50: *l'herminieri*, VII 49; VIII 22
- PUNDT, ELEANOR, X 47
- PURRY, PETER, VI 66
- Pyrameis atalanta*, X 35: *huntera*, X 35
- Quercus alba*, VI 19; VIII 59: *catesbaei*, VI 19, 68; VII 14: *coccinea*, VI 40; VIII 59: *digitata*, VI 19: *laurifolia*, VI 17-18, 40; VII 14: *marylandica*, VI 67: *minor*, VI 19: *nigra*, VI 17, 40, 67; VIII 59: *phellos*, VI 17, 40; VIII 59: *pumila*, VII 10: *rubra*, VI 40; VIII 59: *stellata*, VIII 59: *triloba*, VI 20: *velutina*, VI 19, 40; VIII 59: *virginiana*, VI 17-18, 39; IX 43
- Ragweed, VIII 62: Great, VIII 62
- Rail, Black, VI 30, 31; VII 52; VIII 24: Carolina, VI 44, 51; VIII 24, 26: Clapper, VI 50: King, VIII 24: Virginia, VI 51; IX 53: Yellow, VIII 24
- Rallus crepitans*, VI 50: *crepitans waynei*, VI 50: *elegans*, VIII 24: *virginianus*, IX 53
- RAMSAY, DAVID, VII 30
- Rana catesbiana*, VI 35: *pipiens*, VI 35
- RANDOLPH, HARRISON, IX 42; X 2
- RANDOLPH, MRS. HARRISON, IX 42; X 2
- RANDOLPH, JOHN, VII 45-46; IX 46
- Rat, Black, VI 50
- Rattlesnake, Diamond-backed, VIII 9; IX 46; X 38: Timber, VII 48; VIII 9; X 38
- RAVENEL, AGNES, VIII 55
- RAVENEL, C. P., VIII 12
- RAVENEL, CATHERINE, VII 63
- RAVENEL, EDMUND, VII 63; X 9
- RAVENEL, E. P., VIII 56; IX 22; X 12, 47
- RAVENEL, H. W., VII 13; VIII 4, 10, 45, 46-47, 48, 54, 55; IX 31; X 18, 19, 20-21, 22, 23, 24: Fungi Caroliniani exsiccati, VII 24; VIII 10, 46, 55: herbarium, VI 36; VII 24, 39, 62; VIII 4, 10, 13, 44-47, 48, 49, 55, 56; IX 10, 23; X 18, 47: Plants of the Santee Canal, VIII 45, 54, 55-56; X 17: Plants of South Carolina, X 21
- RAVENEL, H. W. and COOKE, M. C., Fungi Americani exsiccati, VIII 46
- RAVENEL, N. P., VIII 56
- REA, PAUL M., VIII 22, 42; IX 42; X 2, 26: annual reports, 1909, VI 1-10; 1910, VII 1-8; 1911, VIII 1-17; 1912, IX 1-14; 1913, X 1-16: Secretary American Association of Museums, VI 5; VII 3; VIII 5; IX 4; X 3: Secretary City Art Commission, VII 32: Angler fish, X 39: Audubon-Bachman loan exhibit, VII 17-18: Autumn foliage, VI 10: Babylonian clay tablets, X 25-26: Catesby as an ornithologist, VIII 15: Collection of living snakes, X 38-39: Color phases of the pine snake, VI 47: Community and the museum, VI 53-56: Directory of American Museums, VI 59: Educational work of American Museums, X 13: Embryology, X 62, 64: Evolution of a tooth, X 13: Functions of museums, IX 12: Geology of the region about Charleston, IX 64: Heredity, VIII 63-64; IX 13: History of the Museum, VII 33-34: Hummingbird in December, VI 10: Introduction to "The department of geology and mineralogy, by D. S. Martin," IX 33: Introduction to the study of invertebrate animals, VII 60: Invertebrate and vertebrate animals, IX 13: Invertebrates collected on the Thanksgiving Day field trip,

- VIII 15: Life history of a tree, VI 11: Meteorological instruments, VI 10: Municipal catalog of art, VII 57-58: Natural History Society, VII 58-60: New squid for South Carolina, VII 23: Note appended to "The Secessionville Heronry, by H. R. Sass," VIII 53: Octopus and its relatives, X 57-60: One hundred and fortieth anniversary, IX 25-32: Origin of the Museum in 1773, VII 25-27: Proceedings of the American Association of Museums, X 52-55: Progress in department of geology, X 44: Red-throated loon in Charleston harbor, VIII 39-40: Relation of flies and mosquitoes to disease, VIII 42: Dr. Seaman's lecture on Africa, X 36-37: Skeleton of birds, VI 10: Snake eel, Sculpin, and Short big-eye, VI 34: Spiny lobster, VII 23: Summer in retrospect, IX 49-52: Sunfish and the Crab-eater "Cabio," VIII 50: Weather forecasting, VI 10: White pelican in South Carolina, VI 57-58
- REA, P. M. and BRAGG, L. M., West Indian hurricanes, VII 41-47
- REA, P. M. and WESTON, F. M. JR., Preliminary survey of the birds of the coast region, VI 29
- REA, MRS. P. M., VIII 6, 73; IX 12, 42; X 2: Address before the Charleston County Teachers' Association, VIII 67-69: Beaks and bills of birds, VI 10: Digestion of birds, VI 10: Food of birds, VI 10: Life and work of Bachman, VII 17; VIII 15
- Reception on the one hundred and fortieth anniversary of the Museum, IX 41-42
- Recreation, VIII 12
- Redbird, *see* Cardinal, Summer: *also* Tanager, Summer
- Redbud, VIII 60
- Redstart, VI 33
- REED, C. K., bird guide, IX 72; X 29, 40
- REEVES, J. C., VIII 38
- Regulus satrapa*, VIII 33; IX 61
- REICKE, SARA W., VIII 71
- Resin, IX 36: Fossil, VI 26-27; VII 4; IX 37; X 9
- RHETT, A. B., VII 35
- Rhinoceros, VIII 9
- Rhododendron calendulaceum*, VIII 60: *nudiflorum*, VIII 60
- Rhus glabra*, VIII 60: *toxicodendron*, VIII 62
- RIBAUT, JEAN, VI 63
- RICE, J. H., JR., VIII 12
- Ricebird, VII 51; VIII 28; IX 33
- RILEY, J. H., VIII 31
- ROBERTSON, M., VII 49; VIII 38
- Robin, VII 52
- ROBINSON, B. L., IX 22; X 11, 18, 19, 22, 23
- Rock, W., VII 32; VIII 10
- Rosetta Stone, X 51
- ROWELL, A. S., VII 63; X 10
- ROWELL, RENA, VIII 58; IX 3, 56
- Rubus*, IX 65, 66
- Rue, Goat's, VIII 61
- RUFF, C. A., VIII 7
- Rumex acetosella*, VIII 61
- Russian minerals, IX 17, 33
- Rutherford mines, IX 18, 38
- Rynchops nigra*, VIII 22
- Sabal palmetto*, VI 41
- Sabbatia angularis*, VIII 62
- St. Andrew's cross, VIII 61
- St. Paul Institute, VIII 12
- Salamander, Dwarf, VI 35: Mole, VI 35
- Salix*, sp., VIII 59
- SALLEY, F., VI 8; VII 6; VIII 12
- Sambucus canadensis*, VIII 62
- SAMS, DONALD, VIII 63
- Sanderling, VIII 8; IX 54
- SANDFORD, R., VI 64, 65
- Sandpiper, Least, VI 29, 31: Pectoral, VI 51; VIII 25: Red-backed, IX 69: Semipalmated, VI 29, 31: Solitary, VI 30, 31, 44; IX 69: Stilt, IX 52-53
- Sanguinaria canadense*, VIII 60
- Sapsucker, Yellow-bellied, IX 63
- SASS, H. R., VI 11, 31, 32, 44; VIII

20, 21, 22, 24, 25, 28, 30, 31, 32, 33, 53; IX 61: Bird notes, VIII 40-41: Birds of the City of Charleston, VII 7: Bob-white breeding in the city, VI 49: Cardinal singing in winter, VIII 34: Cliff swallow in the city, VI 49-50: Effect of the hurricane of 1911 on bird life, VII 63-64: Fall migration in the city, VI 50: Fox sparrow in the city, VIII 34: Hummingbird in winter, VII 15-16: Ornithological work of Audubon and Bachman in South Carolina, VII 17; VIII 15: Secessionville Heronry, VIII 51-53; IX 43: Wild life in a city garden, VII 64: Wild music, VII 64

Sassafras officinale, VIII 60

SCHERNIKOW, E., VIII 7; IX 36

Schrankia uncinata, VIII 61

SCHULTZ, S., IX 45

Science, (periodical), VIII 12; X 11

Scorpaena plumieri, VI 34

Scorpion, Red-headed, VI 35

Scoter, American, IX 20: Surf, IX 20: White-winged, VIII 20, 23

SCOTT, J. H., Weather forecasting, X 13-14

Sculpin, VI 34

Sea-anemone, VII 59

"Sea biscuit", VII 59; X 41

Sea-lion, Steller's, VIII 66

SEAMAN, L. L., Lecture on Africa, X 36-37

Secessionville Heronry, IX 3, 42-44; X 14, 47-48: purchase, VIII 51-53: title transferred to Museum, IX 10

Sedge, Broom, VIII 61

SEITZ, D., VIII 53

Seiurus aurocapillus, VIII 33: *novaboracensis notabilis*, X 28

Selaginella apus, X 24

Self heal, VIII 61

Senecio smallii, VIII 61

Sensitive plant, Wild, VIII 61

Sepia, X 60

SETON-KARR, H. W., IX 55, 57, 58; X 10

SHARPE, E. E., Arkansas kingbird,

X 26-28

SHARPE, J., IX 24; X 27, 63: Local moths and butterflies, X 56, 62: Preliminary list of butterflies, X 33-36, 41-43

Shearwater, Audubon's, VII 49-50, 50; VIII 8, 22: Greater, VII 50; VIII 22: Sooty, VII 50

SHECUT, J. L. E. W., IX 27, 28

Shells, *see* Conchology

SHEPARD, C. U., VI 14, 15; VIII 6; IX 17, 37

SHEPARD, J. C., IX 31

Shepard collection of phosphates, IX 33

Shepherd's purse, VIII 62

Shoveller, *see* Duck, Shoveller

Shrike, Loggerhead, VIII 41: Northern, VIII 41

Shrub, Sweet-scented, VIII 60

Silene antirrhina, VIII 62: *virginica*, VIII 61

Silk culture, VII 28-31, 35-37, 39; VIII 15: exhibit, VIII 7-8, 16; IX 6, 41

Silkworm, Chinese white, VII 28: Chinese yellow, VII 28

Silver bell tree, VIII 59

SIMONS, EDWARD, IX 21, 22

SIMONS, JAMES, IX 42; X 2

SIMONS, MRS. JAMES, IX 42; X 2

SIMONS, WILLIAM, IX 24

SINKLER, ANNA, X 20

Siskin, Pine, VI 30, 32; VIII 29

Sisyrinchium angustifolium, VIII 61

Sitta pusilla, VIII 33

Skansen outdoor museum, X 54

Skimmer, Black, VI 30; VII 60; VIII 22; IX 44, 54

Sleeping sickness, X 36-37

SLOAN, A. L., VIII 20, 22, 24; IX 22, 42, 63; X 2, 8: South Carolina birds in South America, IX 64

SLOAN, EARLE, VI 58; IX 7, 40; X 44

Sloan collection of minerals, IX 38, 39, 40; X 9, 44

SLOSSON, MARGARET, X 18, 20

Smilacina racemosa, VIII 60

SMITH, J. DONNELL, X 20

SMITH, J. DOUGLAS, VIII 38

- SMITH, LOUISE, X 47
 SMITH, W. C., VI 57, 58
 SMYTH, E. A., VII 49
 SMYTH, E. A., JR., VI 49; VIII 34; X 34
 SMYTHE, A. T., VIII 39
 Snake, Banded water, VI 35; IX 46; Black, VI 35; VIII 38; IX 46; X 38: Burrowing, IX 9: Chicken, X 38: Coachwhip, IX 46; X 38 Coral, IX 46; X 38: Corn, X 38: Florida pine, VI 47; VIII 64; X 38: Garter, VIII 9; X 38: Ground, X 38: Hog-nosed, VIII 9: Keel-scaled green, IX 46; X 38: King, IX 46; X 38: Rainbow, IX 9: Red-bellied, VIII 38, 39; IX 9; X 39: Red-bellied water, X 38: Scarlet king, X 38
 Snakebird, VI 30; VIII 22; X 45
 Snakes, collection of living, VI 35; VIII 9: Color phases of the Pine snake, by P. M. REA, VI 47: Notes on collection of living snakes, by P. M. REA, X 38-39: Red-bellied snake, by L. M. BRAGG, VIII 39
 Snowbird, VI 32
Solanum carolinense, VIII 62: *nigrum*, IX 43
Solidago sp., VIII 62
 Solomon's seal, VIII 60: False, VIII 60
 Sora, VIII 24, 26
Sorghum halapense, VIII 62
 Sorrel, Sheep, VIII 62: Violet wood, VIII 60
 Sour wood, VIII 59
 South Carolina and American General Gazette, VII 37
 South Carolina Gazette (Powell's), VII 25
 South Carolina Gazette and Country Journal, VII 25, 39
 South Carolina Historical Society, VI 45, 61
 South Carolina Kindergarten Training School, VII 8; VIII 17
 Southern Railway Company, IX 19
 Sparrow, Bachman's, VI 32: English, effect of hurricane on, VII 64: Field, VI 29: Fox, VI 32; VIII 30, 34, 38: Henslow's, VIII 29: Ipswich, VIII 29: Leconte's, VIII 29: Macgillivray's seaside, VI 52; VII 51: Savannah, VI 32; VIII 8, 29: Seaside, VI 29, 52: Sharp-tailed, VI 29, 32: Vesper, VI 32; VIII 29; IX 53: White-throated, VI 44; VIII 30
Spatula clypeata, VIII 23; IX 45
 Specimen catalog, VI 2, 12
Specularia biflora, VIII 62: *perfoliata*, VIII 62
 SPEISSEGER, H., VIII 23, 26
 Spermatophytes, X 11
 Sphagnum moss, VI 22, 25
Sphenopholis pallens, VIII 61
Sphyrapicus varius, IX 63
 Spider, Silk, VIII 49
 Spiderwort, VIII 61
Spigelia marylandica, VIII 61
Spinus pinus, VIII 29
 Spleenwort, Ebony, X 22
 Sponges, VII 58
 SPRUNT, A., JR., IX 44; X 8, 14, 27: South Carolina birds in the Arctic regions, IX 64, 71
 SPRUNT, JAMES, X 8, 28, 63
 Squaw weed, VIII 61
 Squid, VII 23; VIII 10; X 57, 59-60: Giant, X 59
 Starfish, VII 59: Brittle, VII 59
 State Legislature of South Carolina, IX 27; X 61
 STEPHENSON, N. W., VII 32, 57
Stercorarius longicaudus, VIII 21
Sterculia plantanifolia, VII 15
Sterna antillarum, VIII 21-22
Stillingia sebifera, VII 13
 Stokes' Business College, VII 8
 Stone Age Exhibit, IX 57-59
 STONEY, S. G., JR., VIII 38
 Storage cases, Metal, IX 7
 Storage collections, VI 2
 Strawberry, Wild, VIII 62: Bush, VIII 60
Sturnella magna, VI 50
 Sugarberry, VI 38, 40
 Sumac, VIII 60
 SUMPTER, THOMAS, IX 28
 Sun-fish, VIII 50
 Swallow, Barn, VI 32; VIII 31; IX 61: Cliff, VI 49-50; VIII 31:

Tree, VI 32
 Swan, Whistling, VI 30; VIII 23
 Swift, Chimney, VIII 40; IX 60, 61:
 effect of hurricane on, VII 64
 Sycamore, VI 38, 41
Symplocos tinctoria, VIII 60
 Tadpoles, IX 21; X 30, 48
 TAFT, ROBERT, IX 64
 Tallow tree, VI 38; VII 13
 Tanager, Summer, VI 32; VII 51;
 VIII 31; IX 44-45, 63: Scarlet,
 VI 32, 44; VIII 31
 Tapir, VIII 9
Tarazacum officinale, VIII 62
 Taxidermy, IX 24; X 56, 63: lec-
 ture, by E. A. HYER, X 56, 62
 TAYLOR, F. E., VI 58
 TAYLOR, MAY, X 47
 Tea-culture exhibit, VI 14
 Teal, Blue-winged, VI 30; VIII 38;
 IX 22: Green-winged, IX 22
Tecoma radicans, VIII 62
Telmatodytes palustris marianae,
 VIII 33
Tephrosia virginiana, VIII 61
Terias delia, X 42: *jucunda*, X 42:
 lisa, X 42: *nieippe*, X 42: *ni-*
 cippe var. *flava*, X 42
 Tern, Cabot's, IX 54: Least, VIII
 21-22; IX 54: Royal, IX 54
Thecla cecrops, X 36: *melinus*, X 36
 THOMAS, STEVEN, IX 6
Thorybes bathyllus, X 43
 Thrasher, Brown, IX 45
 Thrush, Grinnell's water, VI 50; X
 28: Wood, VIII 33
Thymelicus brettus, X 43
Tiarella cordifolia, VIII 60
 TIEDEMAN, MRS. J. C., VI 28
 Titlark, VIII 33
 Toad, American, VI 35
 Toad flax, Wild, VIII 61
 TORREY, BRADFORD, works of, VI
 59; VII 6
Totanus flavipes, IX 60
 Touch-me-not, VIII 62
 Tourmaline, IX 35-36
Toxopneustes variegatus, X 31
Tradescantia virginica, VIII 61
 Traveling exhibits, *see* Exhibits
 Traveling
 Tree census, VI 37-43, 56

Tree surgery, VI 43
 Trees, Care of, VI 42-43: survey of,
 in city, VII 6: Better street trees,
 VI 56-57
Trichostema lineare, VIII 61
Trifolium pratense, VIII 62: *reflex-*
 um, VIII 62
Trillium sessile, VIII 60
Troglodytes aedon, VIII 33
Tropidonotus fasciatus, VI 35
 Trumpet vine, VIII 62
 Tsetse fly, X 37
 TUCKER, R. P., X 14
 Tulip tree, VIII 59
 TUOMEY, M., IX 31
 Turkey, Wild, VII 39
 Turtle, Common box, VII 56
 TYLER, MRS. M. F., VII 24, 38, 61;
 VIII 13
Typha latifolia, VIII 62
Tyrannus tyrannus, VIII 28: *verti-*
 calis, X 26
 UHLER, P. R., IX 34, 39
Ulmus alata, VI 38: *americana*, VI
 38: *fulva*, VI 38
 Umbrella tree, *see* China tree
 United States Geological Survey,
 IX 19
 United States Government publica-
 tions, VIII 12
 United States National Museum,
 VIII 9, 25; IX 35, 38
 United States Weather Bureau, VI
 7
 University of Nebraska, X 18
 University of Pennsylvania, IX 55;
 X 8
 University of South Carolina, VII
 11; VIII 46, 55
 Urchin, Cake, X 31: Heart, X 31:
 Sea, X 31
Uvularia perfoliata, VIII 60
 VAN HOEVENBERG, E., VI 3, 9
 Varnish tree, VI 38
 VAUGHAN, ROSS, IX 46
 VEDDER, C. S., VII 17; VIII 16
 VENNING, S. G., VII 51, 52; IX 60
 Venus looking-glass, VIII 62
Verbascum thapsus, VIII 62
Vermivora celata, VIII 32: *peregrina*,

VIII 32: *pinus*, VIII 32: *rubricapilla*, VIII 32
Vernonia noveboracensis, VIII 62
 VERONEE, E. D., VIII 9
 Vetch, VIII 61, 62
Viburnum prunifolium, VIII 60
Vicia caroliniana, VIII 61: *sativa*, VIII 62
Vincetoxicum carolinensis, VIII 61
 Violet, Bird-foot, VIII 61: Downy Yellow, VIII 60: Halbert leaved, VIII 60
Viola hastata, VIII 60: *pedata*, VIII 61: *pubescens*, VIII 60
 Vireo, Blue-headed, VII 51; VIII 31: Mountain solitary, VIII 31: Red-eyed, IX 44: Solitary, *see* Vireo, Blue-headed: White-eyed, IX 61
Vireo griseus, IX 61
 Virginia tertiary fossils, IX 39
 Virginia State Library, VIII 12
Vitis rotundifolia, VIII 61
 VON KOLNITZ, H., X 55
 WAGENER, ALICE, X 63
 Wake robin, VIII 60
 WALLACE, CRANMORE, VIII 46, 47-48: herbarium, VIII 44, 47-48
 Walrus, VIII 66
 WALTER, THOMAS, VII 10-11: Flora Caroliniana, VII 10, 11, 3: memorandum book, VII 12-13
 Warbler, Black and white, VIII 40; IX 61: Black-throated blue, VI 33: Black-throated green, VI 29: Blue-winged, VIII 32: Cape May, VIII 32: Cerulean, VIII 32: Chestnut-sided, VIII 32: Kentucky, VIII 50: Kirtland's, VIII 32: Magnolia, VIII 32: Myrtle, VI 44, VIII 32, 41: Nashville, VIII 20, 32: Orange-crowned, VIII 32: Palm, VIII 32: Prairie, VI 29, 30, 33; VIII 33: Prothonotary, VI 50; X 28: Summer, VI 33: Swainson's, VIII 31; IX 44: Tennessee, VIII 32: Worm-eating, VII 51-52; VIII 31; IX 54: Yellow palm, VIII 32

WARING, J. I., JR., VII 60; VIII 20, 29
 Water turkey, X 45
 Wax, Fossil, VII 4: Mineral, VI 26: Natural, IX 37
 Waxwing, Cedar, VIII 31: effect of hurricane on, VIII 40-41
 WAYNE, A. T., VI 29, 44, 50; VII 16, 40, 53; VIII 15, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 39, 40, 50; IX 21, 54, 69: Birds of South Carolina, VI 9, 49, 51, 57, 59; VII 7, 17, 22, 49, 50, 51, 52; VIII 13, 19; IX 9, 11, 20, 45, 52-53, 60, 61; X 45, 46
 Weather forecasting, *see* Meteorology
 WEBBER, C. P., IX 52
 WEBBER, MABEL, VI 45; X 18: South Carolina birds in South America, IX 64
 WEEKS, LAURA L., X 55: secretary to director, VI 4; VII 24; VIII 4, 58; IX 3, 56; X 3: assistant secretary American Association of Museums, VIII 4: treasurer Natural History Society, IX 63
 WEEKS, SARAH E., VII 60
 WELLS, E. L., VI 49; IX 45
 WESTON, F. M., JR., VI 3, 11, 33, 35, 52; VIII 8, 9, 20, 21, 22, 23, 24, 25, 28, 30, 31, 32, 33, 38, 39, 42; IX 13; X 30: Autumn migration notes for 1913, IX 60-61: Bird life in the North Carolina mountains, VIII 63: Birds seen on the Thanksgiving Day field trip, VII 60; VIII 15: Breeding warblers of the coast region, VII 40; VIII 15: Brown creeper, a correction, IX 71: Fall migration records, VII 50-52: Further bird notes and corrections, VI 44: New migration records for South Carolina, IX 53-54: Note on Kentucky warbler, VIII 50: Ornithological notes to the Auk, X 13: Ornithological work of Wayne, Loomis, and their contemporaries, VII 40; VIII 15: Preliminary survey of the birds of the Coast Re-

- gion—supplement, VI 29-33:
 Rail family, VI 10: Solitary
 sandpiper, IX 69: South Carolina
 birds in the West Indies,
 IX 64: Spring bird observa-
 tions, IX 44-45: Summer bird
 records, VI 29
- WESTON, F. M., JR., and REA, P.
 M., Preliminary survey of the
 birds of the coast region, VI 29
- Whale, Baleen, VII 48; VIII 9, 36;
 IX 6: Xiphoid, VI 58: skeleton,
 VIII 9
- WHALEY, T. P., VII 48; VIII 9
- WHARTON, B. A., VII 56
- WHEELER, E. B., JR., VII 53; VIII
 21, 27, 28, 30, 32
- Whip-poor-will, VIII 28
- WHITE, J. B., IX 28
- WHITEFORD, DAVID, VII 56
- Whiting, X 39
- Widgeon, VIII 38
- WILBUR, T. S., VIII 53
- WILDER, B. G., Silk spider of Caro-
 lina, VIII 49; IX 13
- Willet, IX 54
- WILLIAMS, E. A., VIII 8, 20, 23, 53:
 IX 13, 21, 42, 44; X 14, 39:
 Breeding birds of Heron Island,
 IX 42-43: European birds, VIII
 63: Redhead, VIII 26: South
 Carolina birds in Florida, IX
 64, 72
- WILLIAMS, H. P., VIII 9, 53, 65, 66;
 IX 42; X 2, 38
- WILLIAMS, MRS. H. P., IX 42; X 2
- WILLIAMS, PORTER, X 14
- WILLIS, MRS. EDWARD, VI 28:
 Concerning the popinac, VI 48
- Willow, VIII 59: Weeping, VI 38
- WILSON, ROBERT, VIII 20, 21
- WILSON, ROBERT, JR., IX 42; X 2:
 report as Dean of Medical Col-
 lege, X 15
- WILSON, MRS. ROBERT, JR., IX 42;
 X 2
- Wistar Institute of Anatomy and
 Biology, IX 55
- WITTE, G. W., VIII 39; IX 6
- Woodchuck, Audubon plate, VII
 38, 61
- Woodcock, VI 31; IX 44
- Woodpecker, Pileated, VI
 29: Southern hairy, VI 29
- WOODS, AMY, IX 3
- Woodsia rufigula*, X 24
- Worcester Art Museum, X 52, 53
- Worm, Common Scale, VII 59:
 Ship, IX 45
- Wren, House, VIII 33: Marian's
 marsh, VIII 33: Short-billed
 marsh, VI 33: Winter, IX 69:
 Worthington's marsh, VI 29
- Xanthium canadense*, VIII 62
- Xylotrya fimbriata*, IX 45
- Yaupon, *see* Cassena holly
- YEAMANS, JOHN, VI 65
- Yellowlegs, Lesser, VI 29, 31, 51;
 IX 52, 60
- Yellowthroat, Southern, VI 33
- Young Men's Christian Associa-
 tion, VIII 9
- Zamelodia ludoviciana*, VIII 30
- Zamenis constrictor*, VI 35
- Zenaidura macroura carolinensis*,
 IX 45
- Zephyranthes atamasco*, VIII 60
- Zeolites, Canfield collection, IX 34-
 35
- Zonotrichia albicollis*, VIII 30

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

**REPORT OF THE DIRECTOR OF THE MUSEUM
FOR THE YEAR 1909
THE HUMMINGBIRD IN DECEMBER
THE NATURAL HISTORY SOCIETY
NOTES FROM THE MUSEUM**

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Librarian

LAURA M. BRAGG

Honorary Curators

WM. G. MAZYCK.....	<i>Conchology</i>
DANIEL S. MARTIN.....	<i>Geology</i>
ARTHUR T. WAYNE.....	<i>Ornithology</i>
NATHANIEL W. STEPHENSON.....	<i>Art</i>

THE CHARLESTON MUSEUM was in existence as early as 1777 under the auspices of the Charleston Library Society, was transferred to the Literary and Philosophical Society of South Carolina in 1815, to the Medical School in 1828, and to the College of Charleston in 1850. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....	\$ 10	PATRONS.....	\$ 500
SUSTAINING MEMBERS.....	25	BENEFACTORS.....	1000

The privileges of members include admission on pay days, tickets to members' lecture courses, and copies of Museum publications.

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second class matter.

BULLETIN OF THE CHARLESTON MUSEUM

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REPORT OF THE DIRECTOR OF THE MUSEUM FOR THE YEAR 1909

The completion of the new building and of the general working equipment, so far as present needs require; the addition of a trained librarian to the staff; and arrangements for a new series of research publications, to be known as "Contributions," are important achievements of the past year.

The raising of funds for installation of exhibits is the final step in the reorganization of the Museum and is the chief problem of the coming year.

FINANCES

The maintenance account received a regular appropriation of \$2500 from City Council. The expenditures of this account amounted to \$2645.10, exceeding the appropriation by \$145.10. This deficit was met by transfer from the general account.

The general account received from contributions of members and from rental of main hall and living apartment \$1112.02. This sum has been expended upon permanent improvements, including a printing outfit, exhibition case construction, lantern slides for educational work, books, specimen trays, pamphlet cases, card cabinets for the biological survey, etc.

Special accounts have included an appropriation of \$2100 by City Council for building improvements; a fund amounting to \$500 for publication of the Contributions, an appropriation of \$150 by the Agricultural Society of South Carolina for an agricultural exhibit, and a number of small accounts.

ADMINISTRATION

While the entire lack of funds for installation of the exhibition collections presents a serious problem for the coming year, there is much cause for satisfaction in the fact that the revision of the collections, the organization of administrative systems, and the equipment of the workrooms have advanced to a point where they no longer require large expenditures of time and money, but rather form efficient tools for the prosecution of the routine work of the Museum and the special problems of installation.

Nearly all departments of the Museum, with the exception of the Mollusca, have now been cataloged. A series of special cabinets with locked rods have been purchased for the specimen record cards, giving to each tray all the security of a bound volume as well as the convenience of the card system.

The storage collections are now all accessible in convenient workrooms, and though all the storage trays are in use many will be emptied as material is put on exhibition.

With the coöperation of the Agricultural Society of South Carolina, the first of the upright floor cases was finished at the end of the year, and will be used for agricultural and other economic exhibits. For the sake of uniformity the general style of this case should be followed in future construction, and for economy of operation funds should be available for purchase of material in quantity, for installation of simple wood-working machinery, and for regular employment of labor. Great diffi-

culty has been encountered in obtaining suitable lumber and accurate mill work, resulting in excessive cost for labor in assembling. The cost of shop equipment would soon be recovered from economy of operation, which would amount to from 30% to 50%.

Early in the year the installation of a complete printing outfit was made possible through the generosity of two members of the Museum. This equipment has been used for printing exhibition labels, record forms, etc., and enables the Museum to make a thoroughly creditable display of its exhibits. The versatility required of the staff under present conditions is well illustrated by the fact that the director, his secretary, the librarian, and the janitor have all been pressed into service in typesetting and press-work.

Extensive changes in the staff have occurred during the year. Mr. Francis M. Weston, Jr., has been unable to serve as a regular assistant, but has done special work throughout the year, having charge of the records of the biological survey, and drafting plans for exhibition cases.

In February Miss Elizabeth Van Hoesenberg was appointed librarian and served until July, when she resigned on account of ill health. She was succeeded in September by Miss Laura M. Bragg, who has had charge of the Natural History Society as well as of the library. These two lines of work require the full time of one member of the staff, and since the director's time is entirely occupied with administrative matters, little progress can be made in the extensive task of installing exhibits until a general curator can be added to the staff to care for the storage collections and to carry out the plans of the director for exhibits.

The work of the honorary curators, whose generous assistance alone makes possible the greater part of the technical work of

the Museum, will be reviewed under the head of their several departments.

Miss Laura L. Weeks has served as secretary to the director since October, devoting most of her time to the work of the American Association of Museums but also materially assisting in the office work of the Museum.

One janitor has been employed as heretofore, but when the exhibits have been installed a door man and probably an additional cleaner will be required.

Gratifying as the progress of the Museum has been since the present reorganization was undertaken, the gravity of the situation which now confronts it cannot be ignored. The new building has been prepared, the records of the old Museum restored and the specimens cataloged, an adequate working equipment created and installed, and a beginning of research work, publication and public instruction made. These are achievements which may well be contemplated with satisfaction, for they have rescued from imminent destruction the oldest museum of America and demonstrated the wide field of usefulness which lies before it in the increase and diffusion of knowledge among the people. No section of the country affords a better opportunity for the work of a modern museum in preserving a record of vanishing conditions and in promoting future development. It is a matter of general moment that this work be done and it should be a matter of local pride that it be done by the distinguished museum whose natural province it is. To insure this end increased public support and coöperation is imperative. The new exhibition hall is practically empty and there are no funds for the installation of the old museum, the most perishable collections being still in the old building, where the Museum's small and overworked staff cannot prevent their further deterioration. *The removal and immediate installation of the old*

museum is imperative for its preservation and is the necessary preliminary to further development of the Museum.

The number of members of the Museum, as listed at the end of this report, is smaller than last year. This is due to the inability of the director to take time to solicit further contributions, less than a half dozen persons having given financial assistance unsolicited. Other sources of income have fortunately brought the total income of the general account to a larger amount than in 1908.

The Museum was the headquarters in November of a local anti-tuberculosis campaign in coöperation with the National Association for the Prevention of Tuberculosis. An extensive exhibit was provided by the Association and installed in the main hall. Lectures were given every afternoon and evening in the Museum, in addition to a large number of talks before various organizations throughout the city. An attendance of over a thousand persons a day for ten days was recorded, public interest was aroused, and plans for a permanent organization effected. Work of a similar character for the decrease of tuberculosis is being conducted in many cities, having begun with an exhibit at the American Museum of Natural History in New York, and it is gratifying that the Charleston Museum should be able to promote so good a cause in this city.

The director represented the Museum at the fourth annual meeting of the American Association of Museums, in Philadelphia, May 11-13, 1909, when he was honored by re-election as secretary of the Association.

THE NEW BUILDING.

During the early part of the year the gallery rails and cornices of the main hall were erected, two additional skylights installed, and the interior and exterior painting completed.

The buff color already adopted for the entrance hall has been used on the walls of the main hall. The standing woodwork has been painted a soft brown which harmonizes both with the buff walls and black cases.

A rail and recording turnstiles have been placed in the entrance hall as a part of the plan for keeping a record of attendance.

The use of the main hall was granted by the trustees to the Knights of Pythias for three days in June and to the Musical Festival Committee for a week in November.

GEOLOGY.

The honorary curator of this department, Dr. Daniel S. Martin, spent two months in further revision of the collections, and generously presented to the Museum and cataloged more than five hundred minerals from his private collection. Under Dr. Martin's care the geological collection has been brought from chaos to order, and through his generous donations has doubled in size. He now has a number of valuable exchanges in view and has matured plans for a representative collection of minerals from the Piedmont region of the Eastern states. Such a collection does not now exist, and substantial progress in its organization is hoped for in the coming year.

The geological material is now ready for installation as soon as cases and labels can be prepared.

CONCHOLOGY.

Substantial progress in the revision of the shell collections has been made by the honorary curator of the department, Mr. William G. Mazyek, assisted by Miss Elizabeth Klinek. Early in the coming year it is planned to publish a list of Mollusca of South Carolina and to install an exhibit of local shells. This will open a new line of educational work and a new department of the biological survey.

METEOROLOGY

By courtesy of the Chief of the United States Weather Bureau a complete set of meteorological instruments has been installed in the Museum for educational purposes. Public lectures have been given describing the use of these instruments and the principles of weather forecasting. Plans are also matured for giving instruction in meteorology to children of the public and private schools, and to facilitate this work the Museum has purchased a series of lantern slides.

The Charleston Museum has the distinction of being the first museum to undertake this line of work.

LIBRARY

The employment of a librarian as a regular member of the staff during the greater part of the year has enabled marked progress to be made in the organization of the library. The necessity, however, of changing librarians delayed the progress of this work, and the task of correlating the work of the various acting librarians is so great that it will require some months yet before the library will be brought up to date.

During the autumn 130 volumes have been bound in the Gaylord binders, greatly improving the appearance of the shelves and the accessibility and durability of the books. One of the most serious needs of the library is money for permanent binding.

The library is especially indebted to Mr. William Brewster for a valuable series of ornithological books, pamphlets, and journals; to Dr. Daniel S. Martin for a similar series of geological literature; to Mr. William G. Hinson for a copy of Michaux's *North American Sylva*; to Dr. John Forrest for astronomical books; to the daughters of John Bachman for his unpublished manuscript work on American entomology with

drawings in color; to Mr. Patrick Calhoun for important works on local scientific history and on early voyages of discovery, presented through Mr. Waring P. Carrington; to Mr. Fitzhugh Salley for a subscription to *The Auk*; and to Miss Henrietta Murdoch for the *National Geographic Magazine*. Mr. William M. Bird presented a set of the *Iconographic Encyclopædia*, late in 1908, which was not included in the report for that year.

In addition to money for binding the library needs a series of modern reference books, including dictionary, encyclopedia, and others.

BIOLOGICAL SURVEY

The biological survey has been largely confined to birds until this year, when additional record forms were devised and the survey extended to other groups. The results of the bird survey were printed in the February issue of the *BULLETIN* and are very creditable, considering the limited opportunity for field work on which they are based.

A beginning has been made in recording the flowering plants and trees, and plans have been laid for a special survey of the trees of the city, to be prosecuted by members of the Natural History Society.

From the few records of fishes it is evident that this group promises to yield important results when examined more extensively. A number of species have been added to the list of snakes previously recorded, many of these having been exhibited alive.

A survey of the spiders has been begun and some records for insects have been obtained. As the Museum has no entomologist, however, the insects are studied chiefly for educational work.

A notebook has been opened for recording the life history of animals kept alive at the Museum. This promises to yield much information of interest.

Substantial progress with the biological survey is hoped for in the coming year.

PUBLICATION

The BULLETIN has been published regularly during the year, and completed five volumes with the December issue. A title-page and index to the five volumes were published at this time.

Through the generosity of a number of members, the Museum has been enabled to undertake the publication of a series of research "Contributions," which will be issued at irregular intervals as opportunity offers. The first of the series will be a book on the birds of South Carolina, by Mr. Arthur T. Wayne, our honorary curator of birds. This work is now in type and will be published early in 1910.

To the newspapers of Charleston, the Museum is indebted for strong editorial support, as well as for the freedom with which their columns have been opened to notices of Museum activities and to news items.

PUBLIC INSTRUCTION

The Charleston Natural History Society has been the chief medium for the educational work of the Museum during the year. The meetings have been devoted to discussions of field work and informal talks on related subjects. In addition to the bird study, which has hitherto been the chief work of the Society, a survey of flowering plants was inaugurated in the spring by Miss Van Hoesen, while in the autumn a study of trees was made the leading subject under the direction of Miss Bragg. In October a revised constitution was adopted and the Society was divided into two sections, for older and younger members re-

spectively. The field trips have been very successful, especially that of February 22nd to Medway plantation, made possible by the courtesy of two honorary members who provided launches. The membership of the Society has increased from 55 to 75, indicating that its work arouses public interest, although very little independent study seems to be stimulated.

Informal lectures were given before the Natural History Society as follows; January 7, Skeleton of Birds, by Prof. Rea; February 4, Food of Birds, March 4, Beaks and Bills of Birds, and April 11, Digestion of Birds, by Mrs. Paul M. Rea; November 4 and 11, Autumn Foliage, by Prof Rea, and Common Oaks, by Miss Laura M. Bragg; December 2 and 16, The Rail Family, by Mr. Francis M. Weston, Jr. and Common Oaks and Pines, by Miss Bragg. Public lectures were given by Prof. Rea November 15, on Meteorological Instruments, and Nov. 29, on Weather Forecasting. As installation of exhibits proceeds more lectures will be given both to school children and to the general public.

PAUL M. REA, *Director.*

LOCAL FAUNA

THE HUMMINGBIRD IN DECEMBER

A female Ruby-throated Hummingbird was taken on Carolina street in Charleston on December 18, by Master Edward Hyer, who gave the specimen to Messrs. Burnham and Rhett Chamberlain for preservation as a skin. This is a most remarkable record, for the species is a summer resident, usually arriving late in March or early in April and departing by the middle of October. The specimen now described showed much worn plumage but whether it was prevented from migrating by some injury is not known.

P. M. REA.

THE NATURAL HISTORY SOCIETY

At the regular monthly meeting of Section A on January 6, Professor Rea lectured upon the subject, The Life History of a Tree, and Miss Bragg described the various species of pines natural to the coast region of South Carolina. Professor Rea repeated this lecture at the meeting of Section B on January 13, while Miss Bragg gave a talk on Winter Buds.

At the February meetings interest will centre about the bird talks to be given by Mr. Herbert R. Sass before Section A on the third, and by Mr. Francis M. Weston, Jr., before Section B, on the tenth. The subjects will be announced in the daily papers.

Section B, on January 15, took a field trip to St. Andrews Parish. Another trip to St. Andrews but covering different ground is announced for Section B on February 5.

Section A has been unable to make the trips arranged for the month on account of unfavorable weather. However, plans will be made at the next meeting for a trip to Hampton Park on Friday, February 4, leaving the city on the 3.30 King Street car from the Battery.

Arrangements are being made for a launch trip of both sections on Washington's Birthday. Details will be announced later. All who desire to go are required to register at the Museum before noon of February 21. The excursion is open to members only.

NOTES FROM THE MUSEUM.

The honorary curator of the geological department, Professor Martin, has taken up his work at the Museum again, and is at present engaged in cataloging additional material which will be given to the Museum from his private collection. Plans are also made for installation of mineral exhibits during Professor Martin's stay.

A Tree Table, similar to the Flower Table which proved of so great interest last Spring, will be started next week in the Museum Reading Room. Labelled specimens of trees will be exhibited there and will be found most useful for study by members of the Natural History Society.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

PLANTING THE MUSEUM GROUNDS
NOTES ON COMMON OAKS IN WINTER

Volume VI, Number 2

FEBRUARY, 1910

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 6 CHARLESTON, S. C., FEBRUARY, 1910. No. 2

PLANTING THE MUSEUM GROUNDS

The planting of the Museum grounds is a subject that has greatly interested the members of the staff; and it has been thought that a brief statement of the plan on which it is proposed to work, and which has already been begun, will be of interest to the people of Charleston.

There were already in the grounds, and in the adjacent little park, a number of rather small oak trees, of several species, especially live-oaks, and some good palmettoes. The Park Department has also set out recently a number of young palmettoes, which it is to be hoped will live and prosper.

The general idea favored by the Museum staff aims at a planting of the grounds in such a way that they shall be both attractive and instructive, combining the aesthetic and the scientific elements, as appropriate to the surroundings of a Museum. For the former, it is intended to introduce as much as possible the evergreen trees and shrubs, which will render the spot beautiful all thro' the winter, the time when visitors and tourists come South, to whom the evergreen foliage of this region offers a peculiar charm. For the latter, the plan is to secure trees and plants that have special interest, whether evergreen or not, from either a botanical or an economic point of view.

The first step was taken last spring, when Dr. D. S. Martin procured from Washington, as a special favor, twelve young

camphor trees (*Laurus camphora*). This is an East Indian tree, resembling much our native red-bay, and like it, a very beautiful evergreen. It has been freely naturalized in Florida, and will grow as far up as Columbia in this state. Most of these camphors have done well since last spring, some of them having grown with unexpected rapidity, although all are as yet small. If they continue to prosper, they will soon become very beautiful shrubs.

Quite recently, another step was taken in the same direction, in procuring a number of young tea-plants (*Camellia thea*) from the celebrated plantation of Dr. C. U. Shepard, at Summerville. A full exhibit of this very interesting industry of South Carolina tea-culture is now being installed in a case in the Museum; and it will add to its value to have the plants growing in the grounds outside. Dr. Shepard, with his usual courtesy, responded most heartily to a request for these plants, and sent a liberal supply. Part of them have been set out to make a hedge, and others to grow alone. As is generally known, the tea-plant is a pretty evergreen, closely resembling in foliage its near relative, the *Camellia Japonica*.

Some additions to the evergreen planting have been made since these last were set out. Several young trees of the loquat, or Japan plum (*Eriobotrya*), and of the Japan privet (*Ligustrum Japonicum*), together with bamboo and some other plants, have been presented by Miss McBee, of Ashley Hall. These are familiar in Charleston gardens, and are highly desirable accessions.

Dr. Martin has prepared a list of some twenty species of evergreen trees and shrubs suitable for the Museum grounds, including those already obtained. By gradually procuring these, and placing them judiciously around and in front of the building, there will be in a few years a beautiful winter garden as the environment of the Charleston Museum.

Among these, a few of our own native species may be noted here particularly. The first place belongs to the noble "big laurel" magnolia (*M. grandiflora*), and the next to the well-known red-bay (*Persea Carolinensis* or *Borbonia*), which ought to be seen all over the city, but is rarely cultivated. Its possibilities, as a street tree, however, are well displayed at the corner of Rutledge Avenue and Bull St., where two most beautiful trees are growing, to show what the streets of Charleston might be all through the winter months, if set out with red-bays. One small tree has just been placed in the grounds, and others will be added soon. A third is the Yaupon or Cassena holly, often called "Christmas-berry" (*Ilex vomitoria*); and a fourth is the laurel-cherry or "mock-orange" (*Laurocerasus Caroliniana*); these are both familiar in the older gardens of the city, and are very attractive plants,—the former with its deep-red berries and the latter with its bright shining foliage; and it is much to be regretted that they do not seem to have been planted of late to anything like the extent that they were formerly, and that they deserve to be.

Of trees that have an economic interest, though not evergreens, a number of specimens of the silk-mulberry have been set out, alternating with palmettoes, along the south side of the building. These were obtained through the courtesy of Miss Henrietta Kelley, whose interest in silk culture is equal to that of Dr. Shepard in tea production. The object sought is to familiarize the people of this city, and the visitors who come to it, and especially the children, with the methods and the possibilities of industries in this region that as yet are appreciated only by a few. In these and similar ways, the Charleston Museum, while not an "experiment station," aims to become an educator along lines of practical importance, and to make its grounds not only a place of attractiveness but also a place of useful instruction.

One more aspect may be mentioned—that relating to botanical science. Apart from beauty and apart from utility, in the ordinary sense, there is the field of strictly scientific interest, which may to some good extent be cultivated by a wise planting of the Museum grounds. There is not room, indeed, nor proper variety of soil or conditions, for anything like a botanical garden, or arboretum. But there could be brought together into this space a very valuable and attractive representation of the native trees of this region. At present, anyone wishing to see these,—any visitor or student from other parts of the country, or from abroad—cannot find access to the trees of the low-country in Charleston, save only the few species in frequent cultivation. Beyond these, he must go miles into the country and travel from one point to another. If specimens could be found, gathered into a small representative *sylva*, it would be a matter of great convenience to the student of botany, and a distinct honor to the city. While not prepared to take this up at once, it is yet a part of the plan of the Museum staff, and one which they hope to begin upon ere very long.

A closing word may be addressed to public-spirited citizens, who may have in their gardens or on neighboring plantations any good specimens of interesting or attractive shrubs or young trees, suitable for such purposes as those indicated here, which they do not need, or are disposed to spare. The Director of the Museum will be pleased to communicate with them on this subject.

D. S. M.

LOCAL FLORA

NOTES ON COMMON OAKS IN WINTER

Among the oaks recorded in the biological survey of the Museum nine species can be readily distinguished in winter when their characteristics have once become familiar. The following notes are given as an aid to the study of this group.

The live oak (*Quercus Virginiana*), the laurel oak (*Q. laurifolia*), the willow oak (*Q. phellos*), and the water oak (*Q. nigra*) are common street or park trees, and have leaves more or less evergreen. All but the last have oblong or oval leaves which are entire, that is, without lobes, except on young shoots.

LIVE AND LAUREL OAKS. The live and the laurel oaks are the only ones in the city which are thoroughly evergreen. Of the live oak's leaves only a small portion is shed each year. Some trees of the laurel oak seem to lose more leaves than others, particularly the young or the poorly nourished, but a healthy tree will remain a bright green all winter. Particularly beautiful laurel oaks may be found forming an avenue at Magnolia Cemetery. The live oak has foliage of a darker green than the laurel oak. The leaves of the two trees may be also distinguished by examining their under surface. That of the live oak has a whitish green tinge, a hoariness, it might be called. But the laurel oak leaf presents a shining green surface of about the same shade above and below. The bark also furnishes a distinction. No laurel oak has the very deeply furrowed pale gray or brown bark which is characteristic of the live oak. Another striking difference may be seen in the acorns. At this season the live oak acorns have been largely gathered by children or animals, who eat the sweet kernel. The acorn is dark glossy brown, longer than it is wide and set in a top-shaped, stemmed cup. These acorns ripen in one year, therefore proving the live oak to belong to the group known as the white oaks, which have no bristles on the tips or the lobes of their leaves. The laurel oak, on the other hand belongs to the red or black oak group whose acorns require two years to ripen and whose leaves are generally bristle-tipped, though the bristles, especially at this season, frequently fall or are worn away. But the laurel oak acorns always have the squat, plump form and stemless,

shallow cup which is found only in this group, altho all members of the group do not have this type of acorn. Those of the laurel oak will, except by the botanist, not be distinguished from those of the willow and water oaks. All possess a deep yellow uneatable kernel and hence may generally be found beneath the trees.

WILLOW AND WATER OAKS. The live and the laurel oaks are truly evergreen, that is, they hold their leaves over from one season to the next, shedding only a portion each year. As partially evergreen may be classified the willow and the water oaks, which are this month still bearing a certain proportion of green leaves along with many partially or wholly dead ones. Unlike the two former, these trees will give up all of last year's leaves and in the spring be clothed in an entirely new set.

WILLOW AND LAUREL OAKS. Most difficult to distinguish of the oaks about Charleston have been the laurel and the willow, especially early in the winter, when the willow oak is still green. But at the present time the more evergreen character of the laurel oak will generally prove a safe guide. It would be well for members of the Natural History Society to study these two trees now while they may be most easily differentiated. A good example of the willow oak may be seen in Cannon Park. It has a smooth light gray trunk and a symmetrical dome-shaped crown. The willow and laurel oak leaves are very similar, particularly in autumn, but the former are typically longer and proportionally narrower. The young leaves in shape and texture, resemble those of the willow tree, hence the name.

WATER OAK. No tree shows greater variation in the shape of its leaves than the water oak, yet few are more easily recognized. No matter how many forms the leaves may assume, among them will be found the type, a leaf broadly rounding at the apex and narrowing down to the petiole in almost perfect wedge fashion. Once this leaf is known the tree cannot be mistaken. This is

the true water oak, though the laurel oak is sometimes incorrectly so called. It is more common outside the city where it everywhere forms part of the underbrush. Even when it sheds all of its leaves, the dead leaves on the ground prove a clue to its identity.

BLACK OAK. One other oak I have seen in the city, a black oak (*Quercus velutina*) which stands on Ashley Avenue near Beaufain Street. Its leaves are large and cleft into angular, bristle-tipped lobes after the type of the red or the black oak group. A test for this species is made by scratching the bark with a penknife. The deep yellow substance just beneath is characteristic.

In the pine woods beyond the city scrub oaks form the chief undergrowth and occasionally develop into trees. At the Navy Yard there is found in this undergrowth, beside the first four oaks already mentioned, the turkey oak (*Quercus Catesbaei*), the Spanish oak (*Q. digitata*), the post oak (*Q. minor*), and the white oak (*Q. alba*), all of which are deciduous.

TURKEY OAK. The leaf from which the turkey oak takes its name has three long bristle-tipped lobes, two of which curve away from the midrib, producing a resemblance to the footprint of a turkey. Endless variety of shape and size may be seen, especially on very young growth, where leaves of even fourteen inches may be found. In summer these leaves are a deep shining green above and on the under surface smooth except for small tufts of hair in the axils of the veins. This feature should be remembered in comparing the tree with the Spanish oak. The leaves of both turn brown in autumn and many remain all winter, rendering identification easy.

SPANISH OAK. The Spanish oak bears a large bristle-tipped, and lobed leaf, the under surface of which, in contradistinction to the turkey oak, is covered with a mat of silky hairs. Among

the diverse forms of this leaf two stand out as types, one with six or eight lobes extending from the midrib, and the other with but three lobes and these at the upper part of the leaf. So marked is this latter form that the elder Michaux considered it a separate species, to which he gave the name *Q. triloba*. Both the turkey and Spanish oaks require two years to mature their acorns. At present the one year old acorns are conspicuous on the taller shrubs at the Navy Yard. Those of the turkey oak are usually borne singly and those of the Spanish oak in pairs. Both are on stems of about one quarter inch length.

POST AND WHITE OAKS. The post oak resembles the Spanish in having its leaf lined with silky hairs but little otherwise. It belongs to the group of white oaks, with rounded lobes and no bristles, and its acorns mature in one year. This might also be said of the white oak, from which the group takes its name, and to which the post oak is closely related. The leaves, however, are different. The post oak leaf has lobes which stand out squarely at right angles to the midrib and are broader at the outer ends. The lobes nearest the apex are largest. The white oak's lobes are more uniform in size, and make an acute rather than a right angle with the midrib. They taper from the body of the leaf toward the rounded tip. The white oak leaf is also smooth beneath, where the post oak has the silky hairs. The white oak is the least abundant of the Navy Yard oaks.

Of the nine species here mentioned all but the black oak and the white oak are common; two, the live and the laurel, are evergreen; two more, the willow and the water, are partially evergreen; the remaining five are deciduous. Botanically, six, the laurel, willow, water, turkey, Spanish, and black oaks, belong to the bristle-tipped group—the red and black oaks. The white oak group, without bristle-tips, claims the live oak, the post, and the white.

L. M. BRAGG.

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

THE CARBON COLLECTION
THE MUSEUM GROUNDS

Volume VI, Number 3

MARCH, 1910

The Charleston Museum

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THE CHARLESTON MUSEUM

LIBRARY
NEW YORK
BOTANICAL
GARDEN

VOL. 6 CHARLESTON, S. C., MARCH, 1910 No. 3

EXHIBITS AT THE MUSEUM

THE CARBON COLLECTION

There have just been installed in the main hall of the Museum some special exhibits from the department of mineralogy and geology. Professor Martin has been largely occupied heretofore in classifying and cataloging the numerous additions made by himself and by others to the general collections of that department. But this work is now so far advanced that some public exhibits can be arranged and displayed. Among these are some that have relation to certain particular groups which possess practical importance. The one to be installed first is a selected series of the carbon minerals, designed to show the gradual formation of the various forms of coal and kindred substances from vegetable matter. Such an exhibit is of great interest, though it is but rarely shown in collections, at least in a form that is readily intelligible to the ordinary visitor or student.

That coal is formed from vegetable matter, is a fact generally stated and admitted, but the evidence is not often clearly to be seen. The object of this collection is to present that evidence in a form such that "he who runs may read." Vegetable matter, when dead, decays by the action of the air—that is, it is oxidized into gaseous compounds that pass away and leave

little or nought behind. But if the air be excluded, the oxidation is very partial, and the other ingredients of the vegetable matter—carbon and hydrogen mainly—unite with each other and with the oxygen present in the vegetable matter itself to form a great variety of compounds, gaseous, liquid, and solid. There is however in all organic matter an excess of carbon as compared with the oxygen and hydrogen; and as the slow process goes on, the gaseous and liquid products gradually escape, and a residue is left that becomes progressively richer in carbon until finally only pure carbon remains.

The exclusion of the air, and hence of its oxygen, may be caused in various ways, by covering up the vegetable matter, either by water or by a deposit of earth, clay, or sand. The latter is the process artificially employed in the manufacture of charcoal, wherein all the gaseous elements present in the wood are eliminated in combination with part of the carbon, the rest of which remains in a nearly pure state as charcoal, but retaining perfectly the form and texture of the wood. In almost the same way, though on a gigantic scale and through long ages of time, have the hardest coals been formed from vegetable deposits. The covering by water, however, permits us to observe the natural process as now going on in peat-swamps. Peat represents a young stage of coal-production; but it is formed only, or chiefly, from moss-deposits of a peculiar kind—the so-called *Sphagnum* mosses. These grow in low wet ground, and have no roots, but keep growing above and dying below. Hence the green carpet that covers the surface of the peat-swamp passes down at a very short distance into a mass of half-decayed and blackish stems matted together; at a greater depth, this becomes a dark pasty mass full of dead stems, etc.; and this in turn may pass into a compact deposit, black or dark brown in color, and approaching some of the softer varieties of

true coal. Like these, it is used as fuel; but it contains a large amount of moisture, and must be dried or pressed, usually, before it is thus employed. Logs and trunks of trees that grew in or around the swamp are often embedded in the peat, and undergo a similar change; their color passes to brown or black, and the woody structure, though often beautifully preserved, is ultimately more or less destroyed and an imperfect coal produced in its stead. Such deposits of wood-coal are sometimes quite extensive and important; they are known as "brown-coal" and also as "lignite." Like peat, they contain a good deal of moisture, which lessens their heating power as compared with true coals. Deposits of peat and lignite are forming now on a large scale in the Great Dismal Swamp of Virginia, the bayou region of Louisiana, and many similar localities.

Coal proper belongs to a much earlier period in the history of the globe, or rather to several such periods. In the course of ages, it has undergone much more alteration and great compression, and hence it contains a larger percentage of what is termed "residual carbon." The plants, moreover, of the earlier ages were different from those of later time, and this fact may have caused some differences, although the general process has been the same. The coals are divided into several varieties according to the extent to which the volatile compounds have been eliminated and the consequent proportion of carbon that is left. The distinction of "hard" and "soft," or anthracite and bituminous, coals is familiar to almost everyone. The latter still retain a considerable amount of the volatile ingredients and hence are used for the manufacture of illuminating gas, or when burned in a grate, give off the same gas in a brilliant play of flame. The hard or anthracite coal, on the other hand, has by the agency of great pressure and of internal heat lost nearly all its hydrogen and oxygen and contains a very

large amount of "residual carbon." It burns with a glow, but with little flame, and cannot be used for manufacturing gas.

When a bituminous coal is heated in the retorts of a gas-works and the volatile ingredients removed, it is reduced to the familiar substance known as coke. This is a spongy mass, essentially the same in composition as anthracite, only produced rapidly and by great heat, instead of by the slow process and at the moderate temperatures of nature, combined with enormous pressure in the rocks. In the gas-retorts the coal softens under the great heat, and the escaping gas leaves behind a porous mass of residual carbon. It is of great interest to know that in some instances, where molten igneous rocks have broken through a bed of bituminous coal, the latter has been locally altered into a natural coke, much like the artificial product, by the influence of the extreme heat.

If the process goes so far, however, that all the gaseous compounds are expelled and only carbon remains, the material that is left is not available as a fuel. Pure carbon is practically almost incombustible; and the last stage of the process described is the production of graphite or plumbago, often erroneously called "black-lead," from its metallic luster. This is the material used for pencils, for stove-polish, and for refractory crucibles. Between the hard anthracites and this substance, there are intervening grades known in nature as "graphitic anthracite;" and a similar stage of artificial reduction furnishes the "carbon" points and rods used in electric lighting.

All these substances, so different in their uses and properties, are nevertheless simply products formed at different stages in the series of changes wrought by the general process above described. There are no sharp lines of division between them, but they pass one into another, as the volatile elements diminish and the percentage of "residual carbon" increases. The names

that are given to them denote their general character rather than their precise constitution. Vegetable tissue of all kinds, consists essentially of about one-half carbon and one-half hydrogen and oxygen gases, with small amounts of nitrogen and some other elements which need not be here considered. In the change to peat or lignite, the proportion of carbon has risen from 50 per cent to 60 or more. The bituminous coals range from some 60 to 75 per cent of carbon; then come the intervening grades known as semi-bituminous and semi-anthracite, with increasing carbon content, and finally the true anthracite, with 80 to 90 per cent or even more, of carbon remaining; then follows graphitic anthracite, and finally graphite, which is nearly pure carbon.

In the series now placed on exhibition, these several grades or stages are represented by characteristic specimens, arranged in order, from *Sphagnum* moss up to graphite. The pressed mosses show somewhat the darkening and dying of the lower portion of the stems. Then are seen several examples of peat, beginning with very raw, pale-brown, salt-marsh peat, such as abounds at many points along the coast—a mere loose mat of half-decayed fibres—and passing on through various grades of lignite, soft coals, and hard coals, to graphite as the closing term in the series. The labels explain the character of each specimen and enable the student to follow the process.

THE OILS AND ASPHALTS

Another type of carbon minerals is found in the asphalts, bitumens, and oils. These are hydro-carbon compounds containing little or no oxygen. The precise manner of their origin is not so well known as in the case of the coals; and it seems probable indeed that they may have been formed in several different ways; but in all cases doubtless from organic matter, veg-

etable or in some cases perhaps animal also, at least in part. Examples are shown here of hard asphalt from two localities in Cuba, and from the celebrated "pitch lake" of the island of Trinidad, in the West Indies. Great deposits of asphalt occur likewise in Venezuela, which have given rise to much of the disputes between American capitalists and the government of that country.

There are also some substances known as asphaltic coals, which resemble coal in appearance but are quite different in origin, occurring not in beds laid down by deposition, but as the filling of veins or fissures in other rocks. This fact, with other peculiarities both of occurrence and of composition, shows them to be hardened and condensed forms of hydro-carbons similar to asphalt. Such are the "Albert Coal," or Albertite, of New Brunswick; the Grahamite of West Virginia; and a similar substance from Mexico, all of which are shown. These from their large amount of hydro-carbon content, are of especial value in gas-making.

Related to the asphalts in composition, but different in some respects, and especially in texture and physical properties, is the curious substance known as mineral wax, or ozokerite (also spelled ozocerite). It is a rare body, found at only a few localities; but a series of typical specimens may be seen here.

THE FOSSIL RESINS

Still another class of carbon minerals may be noted—namely, the fossilized resins. These differ in containing a much larger proportion of oxygen than those before described, and are known as oxygenated hydro-carbons. They are formed in small quantities only and in close association with lignites and some coals, and they represent the resinous matter present in the original wood. All Carolinians are familiar with the abun-

dant resin that forms in and flows from our pines, and sometimes accumulates in hardened masses under the bark and around the roots of the trees. The resins are bodies almost unaffected by the ordinary processes of decay, or by anything except a high heat. Hence in the change of wood to lignite or brown-coal, any resinous matter present in the wood remains practically unaltered; and it is not unusual to find a perfectly black lignite seamed or specked with bright yellow resin. It is true that the resin has undergone some change; it is hardened, and some chemical alteration has taken place, but nothing that essentially changes its appearance. These fossil resins, so called, are beautiful and interesting bodies, the most notable being the celebrated substance amber, about which has gathered so much of romance and fable. But besides amber, there are many varieties of fossil and semi-fossil resins, resembling amber in aspect, but less hard and less valuable. Among these are the copals, which are quite abundant in some parts of Africa and the East Indies, and are largely imported for the manufacture of fine varnishes. The New Zealand "Kauri gum," as it is usually called, which is not a gum, however, but a resin, is also extensively used for such purposes. Examples are shown of both these substances. Attention is called to the specimen No. 9632, from New Zealand, which shows the occurrence of a golden-yellow fossil resin in a jet-black lignite, as described above.

These resinous bodies belong to the later periods of geological time. Some hard ambers are found in Cretaceous lignite-beds; the true amber of jewelry is of Tertiary age; and the copals are mainly Post-tertiary (or Quaternary); and these pass gradually into the resinous exudations of modern trees.

D. S. MARTIN.

THE MUSEUM GROUNDS

The article in our last issue, describing the plans adopted and the steps already taken in the planting of the Museum grounds, has awakened much interest among our Charleston friends, and has been followed by offers of desirable and attractive plants from several sources. Most of these have been set out, but for some of them it is thought better to wait until the autumn before removing them.

It gives the Museum authorities much pleasure to acknowledge here the following offers of trees and plants, in addition to those previously mentioned, and to thank the citizens who have presented them.

White opoponax (<i>Acacia</i>)	Mrs. J. C. Tiedeman
Mimosa (species?)	Miss Elizabeth Klinek
Cassena holly	Mr. C. H. Muckenfuss
Young grapefruits	Miss Frances Jervey
Red-bays (<i>Persea</i>)	Miss Huchett
Maiden-hair tree (gingko)	Mrs. Edward Willis

Besides these, a number of native shrubs and young trees have been secured on the excursions of the Natural History Society, and set out, largely through the untiring interest of Mr. P. P. Mazyek. Among these are the beautiful evergreen anise-tree (*Illicium*), the large magnolia, red bay, American holly, cedar, and pine (*P. taeda*).

It will soon be late to put in additional plants; but most of those already placed appear to be doing well, and the work will be taken up carefully in the fall. It is hoped then also to begin the procuring of characteristic native trees, other than evergreens, and the formation of a representative sylvia, as described in the last BULLETIN, in the ground behind the Museum, facing on Ashley Avenue.

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

PRELIMINARY SURVEY OF BIRDS—SUPPLEMENT
LOCAL FAUNA—FISHES
NOTES FROM THE MUSEUM

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

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Honorary Curators

WM. G. MAZYCK.....	<i>Conchology</i>
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BULLETIN

OF

THE CHARLESTON MUSEUM

LIBRARY
NEW YORK
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GARDEN

VOL. 6 CHARLESTON, S. C., APRIL, 1910 No. 4

LOCAL FAUNA

A PRELIMINARY SURVEY OF THE BIRDS OF THE COAST REGION OF SOUTH CAROLINA—SUPPLEMENT ¹

In many cases, the records given in the Preliminary Survey of the Birds of the Coast Region of South Carolina² were not sufficiently complete to substantiate the local status of the species for which they were made. It has, therefore, been the object of the survey in its later work to pay closer attention to these species in order that the gaps in the earlier series of records may be filled. The results are very satisfactory. Following is a list of the species whose local status, as given by Mr. Arthur T. Wayne, is further established by the records of the survey:—

1. As permanent residents: Louisiana Heron, Cooper's Hawk, Florida Red-shouldered Hawk, Southern Hairy Woodpecker, Pileated Woodpecker, Meadowlark, Field Sparrow, Worthington's Marsh Wren.

2. As summer residents: Wilson's Plover, Prairie Warbler.

3. As winter visitants: Bufflehead, Ruddy Duck, Cowbird, Sharp-tailed Sparrow, Seaside Sparrow.

4. As transient visitants: Least Sandpiper, Semipalmated Sandpiper, Lesser Yellowlegs, Black-throated Green Warbler.

¹ See also Summer Bird Records, by F. M. Weston, Jr., BULL. CHAS. MUS. V, 67-68.

² BULL. CHAS. MUS., V, 13-24, 27-32.

Beside these, many other records have been made, giving breeding dates which extend the season of residence for certain migrants, and noting the occurrence in this region of several irregular and rare visitors.

Among the records of special interest may be mentioned the breeding of the Fish Crow in the city, the breeding of the Prairie Warbler, very late records for the Ruby-throated Hummingbird and the Junco, and records for the Whistling Swan, Yellow-crowned Night Heron, Black Rail, Crossbill, and Pine Siskin.

The species listed below are those for which additional information has been obtained since the last publication of the records of the survey. In cases where migration dates have been extended, the season of residence is given as now known; reference to the last published list will show the changes which have been made. Five species, hitherto unrecorded, have been added: Blue-winged Teal, Whistling Swan, Black Rail, Solitary Sand-piper, and Crossbill.

1. **Horned Grebe.**—w. v. Oct. 25 (city)—Apr. 10.
2. **Great Northern Diver; Loon.**—w. v. Oct. 19—Apr. 12.
3. **Laughing Gull.**—w. v. Sept. 17—mid-Apr.
4. **Bonaparte's Gull.**—w. v. Nov. 29—May 15.
5. **Black Skimmer.**—s. r. About Apr. 1—Oct 15 (Oct. 25?).
6. **Snakebird.**—s. r. Apr. 4—Aug. 31.
7. **Brown Pelican.**—s. r. Feb. 22—Sept. 18.
8. **Blue-winged Teal.**—[w. v.] One record, Nov. 23, 1909.
9. **Greater Scaup Duck.**—w. v. }
10. **Lesser Scaup Duck.**—w. v. } —June 6.
11. **Bufflehead.**—w. v. Nov. 28—Mar. 28.
12. **Ruddy Duck.**—w. v. Specimen taken Jan. 12, 1910.
13. **Whistling Swan.**—w. v. Very rare. One record, Nov. 21, 1909.¹
14. **Bittern.**—[p. r.] Rare. Five records have been made for

¹ BULL. CHAS. MUS., V, 62.

this species during the past winter in the marshes in the north-eastern part of the city.

15. **Egret**.—s. r. Mar. 28–Nov. 4.

16. **Snowy Heron**.—s. r. Breeds. Apr. 24–Aug. 12.

17. **Green Heron**.—[P. R.] Breeds. Only winter record, Dec. 23, 1909.

18. **Yellow-crowned Night Heron**.—[s. r.] Very rare. From Sept. 3 until Oct. 12, 1909, an immature specimen was observed by Mr. Herbert R. Sass¹ in his garden on Legare St. This is the only known occurrence of this species in the city.

19. **Black Rail**.—[s. r.] Very rare. Only one record—Mr. P. G. Porcher, Jr. saw and almost captured a specimen near Mt. Pleasant, S. C., Sept. 1, 1909.

20. **Coot**; "**Blue Peter**".—P. R. Additional summer records show this species to be a permanent resident.

21. **Woodcock**.—[P. R.] Usually rare, but locally very common during winter of 1909–10. *City*; Mar. 11, 1910. Only city record since 1899.

22. **Least Sandpiper**.—T. v. May 16; Aug. 19–Sept. 28.

23. **Semipalmated Sandpiper**.—T. v. May 16; Aug. 4–Sept. 28.

24. **Lesser Yellowlegs**.—T. v. Mar. 5 (very early); Sept. 16. Specimens taken on both dates.

25. **Solitary Sandpiper**.—T. v. Sept. 11–25. Common on the sea beaches in the fall, but hitherto unrecorded by the survey.

26. **Killdeer Plover**.—W. v. Aug. 21–Apr. 5.

27. **Wilson's Plover**.—s. r. Breeds. Mar. 4–Aug. 21.

28. **Ground Dove**.—P. R. Breeds. Set of two eggs found hatching, Sept. 25, 1909.²

29. **Marsh Hawk**.—W. v. Sept. 7–Apr. 11.

30. **Florida Red-shouldered Hawk**.—P. R. Breeds.

31. **Osprey**; **Fish Hawk**.—s. r. Breeds. Feb. 22–Dec. 6.

32. **Chuck-will's-widow**.—s. r. Breeds. Mar. 12 (city)–Sept. 4

¹ BULL. CHAS. MUS., V, 59.

² Ibid., V, 67.

33. **Ruby-throated Hummingbird.**—s. r. Breeds. Apr. 4–Oct. 10. On Dec. 18, 1909, a specimen was taken on Carolina St.—on the outskirts of the city—by Master Ned Hyer.¹ In the course of the past winter, four or five reports have been made from the city and vicinity, and from Summerville, S. C., of specimens having been seen.

34. **Kingbird.**—s. r. Breeds. Apr. 3–Oct. 16 (very late). On Feb. 12, 1910, three independent records were made at the Navy Yard for this species, but no specimen was taken.

35. **Phoebe.**—w. v. Sept. 28–Mar. 17.

36. **Crested Flycatcher.**—s. r. Breeds. Apr. 3–Oct. 9 (late).

37. **Fish Crow.**—p. r. Breeds. Found breeding in the city near the corner of Broad and Orange Sts., May 12, 1909.²

38. **Crossbill.**—w. v. Irregular. One record, Mar. 6, 1909. Master Rhett Chamberlain saw and positively identified one of these birds among a flock of Goldfinches on the Porter Military Academy campus.

39. **Pine Siskin.**—w. v. Irregular. Recorded by Mr. Herbert R. Sass in his garden on Legare St., Apr. 18–20, 1909. This is the only city record, and also the latest spring record for the coast region.³

40. **Vesper Sparrow.**—w. v. Oct. 13–Apr. 12.

41. **Savannah Sparrow.**—w. v. Sept. 28–May 9.

42. **Sharp-tailed Sparrow.**—w. v. Sept. 29–Mar. 21.

43. **Junco; Snowbird.**—w. v. Nov. 11–Mar. 29 (very late).

44. **Bachman's Sparrow.**—p. r. Breeds.

45. **Fox Sparrow.**—w. v. Nov. 21–Mar. 13.

46. **Scarlet Tanager.**—t. v. Very rare. Third record of the survey, Apr. 10, 1909.

47. **Summer Tanager.**—s. r. Breeds. Apr. 10–Sept. 27.

48. **Barn Swallow.**—t. v. Apr. 3–May 30; July 31–Oct. 29.

49. **Tree Swallow.**—[w. v.] Aug. 3–Nov. 23; Mar. 5–May 19.

¹ BULL. CHAS. MUS., VI, 10.

² Ibid., V, 67.

³ Ibid., V, 37, 60.

50. **Summer Warbler.**—[s. r.] Apr. 21–May 13; July 18–Oct. 3.

51. **Black-throated Blue Warbler.**—T. v. May 9–12; Sept. 25–Oct. 28.

52. **Prairie Warbler.**—s. r. Breeds. Mar. 28–Oct. 9. Until the summer of 1909, this species was not known to breed in the coast region. On June 18, 1909, Mr. F. M. Weston, Jr., found a brood of nearly fledged young at the Navy Yard.

53. **Southern Yellowthroat.**—P. r. Breeds.

54. **Redstart.**—T. v. May 11–13; Aug. 9–Oct. 27.

55. **House Wren.**—w. v. Sept. 20–Apr. 12 (Apr. 13?).

56. **Short-billed Marsh Wren.**—w. v. Oct. 3—.

57. **Golden-crowned Kinglet.**—w. v. Oct. 27–Apr. 9 (very late).

F. M. WESTON, JR.

LOCAL FAUNA

A SNAKE EEL

One of the Snake Eels (*Ophichthus ocellatus*) was taken on Sullivan's Island, April 9, 1910, during a field trip of the younger section of the Natural History Society.

The distribution of this handsome species is given by Jordan and Evermann¹ as "south to Brazil, north to Pensacola." The capture of a specimen at Charleston is therefore not only the first record for South Carolina, but also establishes a new northern limit for the species.

SCULPIN

A Sculpin received in the summer of 1908 proves to be *Scorpaena plumieri*, a form common from the Florida Keys southward to Brazil, but apparently not hitherto recorded farther north. The specimen here described is without data, but since it was received in a fresh condition, there can be no doubt but that it was caught in the immediate vicinity of Charleston.

SHORT BIG-EYE

The Short Big-eye (*Pseudopriacanthus altus*) also belongs to the West Indian fauna and is taken occasionally on the Grouper Bank, off the South Carolina Coast. Two specimens from this locality have been recorded—one by Jordan and Evermann² and one by the writer.³ A third specimen was received in the summer of 1908, and is of interest as exceeding the maximum length hitherto recorded. It measures 12½ inches (in formalin), while Jordan and Evermann state that their Charleston specimen, measuring 11 inches, is the largest they have seen.

These interesting records, based on specimens casually brought to the Museum, make it evident that the biological survey of the fishes will afford valuable results, especially in establishing new northern limits for West Indian species.

P. M. REA.

¹ Bull. U. S. Nat. Mus. No. 47, Part I, P. 383.

² Ibid, 1240.

³ BULL. CHAS. MUS., II, 1906, 55.

NOTES FROM THE MUSEUM

The Museum has received from Miss Maria H. Gibbes framed copies of the invitation sent to Professor Lewis R. Gibbes to attend the opening of the Museum at the College of Charleston in 1852, and of the invitation sent to Miss Gibbes on the occasion of the opening of the Museum library in its present building in 1908. Miss Gibbes has also presented a number of publications of Professor Gibbes, which were not in the Museum library.

Nearly all of the snakes of the Live Snake Collection have survived the winter and are in good condition. New acquisitions are the Banded Water Snake (*Tropidonotus fasciatus*), a common species not before represented in the collection; and the Black-snake (*Zamenis constrictor*). Both were taken near Charleston.

The Museum has recently commenced a survey of the amphibians and lizards of this vicinity. Specimens of the following species have been brought to the Museum and frequently kept alive there: Dwarf Salamander (*Manculus quadridigitatus*), Mole Salamander (*Amblystoma talpoideum*), Ditch Eel (*Amblystoma means*), Southern Tree Frog (*Hyla squirella*), Swamp Tree Frog (*Chorophilus nigritus*), Green Tree Frog (*Hyla cinerea*), Bullfrog (*Rana catesbiana*), Leopard Frog (*Rana pipiens*), American Toad (*Bufo americanus*), Red-headed Scorpion (*Eumeces quinqueclineatus*), Six-lined Lizard (*Cnemidophorus sexlineatus*), Ground Lizard (*Lygosoma laterale*), Green Lizard (*Anolis carolinensis*), Glass "Snake" (*Ophisaurus ventralis*), and various tadpoles not yet identified. With one exception these specimens have been collected by the boys of Section B of the Natural History Society.

Dr. Daniel S. Martin, honorary curator of the geological department, is now visiting a number of southern museums in the interest of the special Piedmont collection of minerals, the plans for which have already been described in the Bulletin. Dr. Martin has completed the revision and cataloging of the mineral

collections, and these are now ready for exhibition as soon as funds for installation are available.

Dr. George W. Field, chairman of the Massachusetts Fish and Game Commission, has recently visited the Museum while returning from the Convention of the National Association of Shellfish Commissioners at Mobile. He spent two days about Charleston, photographing birds along the coast islands and at Otranto.

A preliminary revision of the Henry W. Ravenel herbarium of cryptograms has just been made. It is found to contain about 856 specimens, 550 of which were gathered in South Carolina. The *Musci* have been specially listed in order to comply with a request for information about South Carolina mosses. Similar requests indicate the urgent need of a careful survey, based upon actual field work, of the flora and fauna of the state.

Section B of the Natural History Society has taken two field trips this month, on April 9 to Sullivan's Island after marine specimens, and on April 16 to St. Andrew's Parish. Section A is supplementing the tree survey of the streets by a study of the trees of the parks, church-yards, and interesting private grounds. St. Philip's, St. John's, and the Unitarian church-yards have been visited. Next Monday, May 2, the society will meet at the Second Presbyterian Church at 4.30 for an examination of the trees about that church, in Marion Square, and at St. Paul's Church. A large attendance attests the interest taken in the short afternoon trips.

The tree survey of the streets of Charleston, undertaken last fall, is nearing its completion. It is desired that all reports be handed in at or before the next meeting of Section A, to be held on May 5. The program for that day will treat of some results of the survey and of the practical care of city trees.

The May meeting of Section B will be held on May 12. Mr. F. M. Weston, Jr. will speak, the subject to be announced later.

BULLETIN
OF
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EDITED BY
PAUL M. REA

STREET TREES OF CHARLESTON
FURTHER BIRD NOTES

The Charleston Museum

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 6

CHARLESTON, S. C., MAY, 1910

No. 5

LOCAL FLORA

STREET TREES OF CHARLESTON

In the autumn of last year the Charleston Natural History Society, under the auspices of the Charleston Museum, laid its plans for a complete survey of the trees of Charleston. These plans included the making of a census of the trees found along the public highways; the mapping of the trees in the various parks and church yards; and the recording of any additional species found in private grounds. The first work to be undertaken was the street census. In preparation for this the Society made a careful study during the winter of the trees known to occur in the city.

Under a special tree survey committee the city was divided into districts which were assigned to various members of the Society. With the return of spring and consequent development of foliage, the census was begun. It now stands completed.

STATISTICS

The investigations of the tree survey have extended over all streets lying south of Hampton Park. The following list shows the number of species recorded and the relative abundance of each.

Elm (all species)	1928	Box-elder.....	11
Poplar, Carolina (includes		Magnolia.....	6
4 Silver Poplars).....	856	Dogwood.....	6
Oak		Linden.....	4
Water.....	153	Ailanthus.....	4
Live.....	102	Ash.....	3
Laurel.....	70	Weeping willow.....	2
Willow.....	21	Varnish Tree.....	2
Chestnut.....	2	Pecan.....	2
Black.....	1	Catalpa.....	2
	349	Crepe Myrtle.....	1
Hackberry or Sugarberry.....	179	Red Juniper.....	1
Palmetto.....	149	Cherrylaurel or Mock Orange..	1
Buttonwood or Sycamore.....	124	Tallow Tree.....	1
Maple (Red and Silver).....	60	Persimmon.....	1
Paper or Wild Mulberry.....	48		
China Tree.....	16	Total.....	3756

DISTRIBUTION AND SUITABILITY

A comparison of these figures shows that, roughly speaking, more than fifty per cent of the street trees are elms, about twenty-five per cent poplars, less than ten per cent oaks, about five per cent hackberries, four per cent palmettoes, and three per cent buttonwoods. The remaining trees, 171 in all, include eighteen species and constitute less than five per cent of the entire number. These percentages prove an unnecessary lack of variety in our street planting. A stranger visiting Charleston would assuredly carry away the impression that its street trees were all elms and poplars, so scattered are other species. To any one interested in the shade tree problem the question immediately arises: Are elms and poplars suitable trees for a southern city, Charleston in particular?

ELMS. The elms include three species, the American Elm (*Ulmus Americana*), which predominates, the Slippery Elm (*Ulmus fulva*), frequently found in the planting of recent years, and the Wing Elm (*Ulmus alata*), of which forty-two examples are recorded. The Wing Elms are among the oldest trees in the city and are at present much stronger and healthier than the American Elms of the same age. Throughout the city the American Elms stand in urgent need of care. There are beautiful

exceptions, but as a rule these trees have hollow or badly scarred trunks, decayed limbs, and a generally neglected appearance. Much can be done for them by proper treatment. The results of the survey seem to prove that in future trees might be planted which would maintain their health with less attention than this elm requires. The Wing Elm, for instance, an exceedingly graceful tree, has proved hardy in Columbia and is recommended by the North Carolina Geological and Economic Survey in its bulletin entitled "Shade Trees for North Carolina", as being preferable to the American Elm. Experience in Charleston would seem to substantiate this opinion. The Slippery Elm, while planted to some extent of late, is represented by so few large specimens that no estimate as to its enduring qualities can be formed.

POPLARS. The Carolina Poplars (*Populus deltoides*), which were so extensively planted some fifteen years ago, have proved not so valuable as was expected. They have grown rapidly, it is true, but are already beginning to show signs of old age. The short season of leafage, the attraction which they possess for caterpillars, and the ugliness of their shape when not well clothed in green, render them far from desirable as city shade trees. They can be used advantageously, however, in alternation with more slowly growing trees, the poplars being cut down when the other trees are large enough to furnish shade. If this method had been followed when Charleston's poplars were set out, many streets would now be ready to have their poplars removed. As it is, alternating poplars may still be replaced with better trees which will furnish shade when the poplars have become not merely unsightly but dead. A wholesale sacrifice of poplars should in no case be advocated until they can be at least in part replaced.

OAKS. The oaks constitute the finest trees in the city but unfortunately they are not abundant. The Live Oaks at the Battery and about the College of Charleston, and the Laurel Oaks on Wragg Square show the magnificent effect which these trees can produce. The Live Oak (*Quercus Virginiana*) is not suitable for narrow streets

because of the very broad crown which it forms, but where it is given plenty of room no tree can excel it for this climate. The Laurel Oak (*Quercus laurifolia*), as a street tree, possesses all the advantages and none of the disadvantages of other oaks; it grows rapidly, heads high, forms a not too broadly oval crown, gives good shade in summer, furnishes a cheerful green in winter, and is suitable for planting on either broad or narrow streets. The Water Oak (*Quercus nigra*) is a smaller tree, better fitted for narrow streets. It has recently been planted in the northern parts of the city in conjunction with Live and Laurel Oaks, 125 of the Water Oaks in the city being in this section. Very few large Willow Oaks (*Quercus phellos*) are to be seen in Charleston but these few are beautiful enough to make more desirable. The city has planted practically no Willow Oaks, but the experiment has been privately tried of planting the trees in alternation with Box-elders. The Box-elders will give thick shade before the oaks do and can be cut down when the oaks need the space which they occupy. Box-elders, like poplars, are useful for temporary but not for permanent planting.

Other oaks recorded by the survey are the Black or Yellow Oak (*Quercus velutina*), and the Chestnut Oak. Doubtless other species could be made to flourish here. The attempt is being made with Scarlet (*Quercus coccinea*) and Red Oak (*Quercus rubra*) about Colonial Lake.

HACKBERRY OR SUGARBERRY. The survey has not distinguished between the two species of Hackberry, *Celtis occidentalis* and *C. Mississipiensis*, but the former is undoubtedly the more plentiful. There are about 50 medium or large sized trees scattered about Charleston. They are, in general, not subject to trunk decay, produce a deep shade and thrive well under the conditions of city life. Beside these trees, numerous young saplings have been set out this spring in the northern part of the city, the section of the Park Board's greatest activity at present. The Hackberry has been much planted in Columbia where the effect produced is good, even if monotonous.

PALMETTO. The Palmettoes (*Sabal Palmetto*) can endure salt water as no other tree in this region will. Consequently they seem to have been well chosen for the sections of the city where most of them are situated, namely, on East Battery and at the western end of Calhoun Street. The trees on East Battery are in good condition but a number on Calhoun Street have died and need replacing.

BUTTONWOOD. Another tree which the survey finds usually in good condition is the Buttonwood (*Platanus occidentalis*), or Sycamore, as it is commonly though incorrectly called. Nowhere found in large numbers it is yet a familiar tree in most sections of the city. Some complaints have been made against it on the score of caterpillars. This is a charge which should be investigated. No sign of the fungus disease which attacks this species farther north has yet been noticed in Charleston. Of the Asiatic species (*P. orientalis*), two trees have been discovered, apparently no more healthy than the native species.

MAPLES. There are no large Maples in the city. Strong young specimens of both Red (*Acer rubrum*) and Silver Maple (*A. saccharium*) may occasionally be seen. This year several blocks on one street have been planted in maple and elms. It is encouraging to see these occasional attempts to secure variety. When carefully boxed and protected from sunscald, there seems no reason why maples should not flourish here.

PAPER MULBERRY. The Paper Mulberry (*Broussonetia papyrifera*), locally known as Wild Mulberry, is a tree once extensively planted but now comparatively seldom seen. Several groups of eight or ten trees remain, however, and afford a cool shade in otherwise treeless streets. A habit of root spreading which is destructive to sidewalks renders the further street planting of this tree unwise.

OTHER SPECIES. No other species of tree is sufficiently well represented to furnish a basis by which to estimate its value as a street tree. Judging, however, from specimens in various churchyards, parks and private grounds, the Linden, the Cherry laurel (*Laurocera-*

sus Caroliniana) or Mock Orange, the Crepe Myrtle (*Lagerstroemia indica*), and the Catalpa (*Catalpa catalpa*) might be used to great advantage. Several species of linden are native and are recommended by the North Carolina Geologic and Economic Survey as "among our most desirable shade trees." The other three trees, while too small for consecutive, are desirable for mixed planting, the Crepe Myrtle and Catalpa being conspicuous for the beauty of their blossoms, and the Cherrylaurel for its most perfect evergreen foliage. The China Tree is generally considered undesirable along streets because of its berries, and the Catalpa is sometimes thought objectionable by reason of the untidiness of its blossoms as they fall. However this may be, an effort should most certainly be made to introduce some variety among the trees of the city. The endless monotony of elm, poplar, poplar, elm can easily be remedied as the poplars die out. Continual planting of one species is not advisable. Occasional streets arched with elms or oaks or hackberries may be beautiful but whole sections of elms, oaks, or hackberries become tiresome. There is plenty of material for choice.

MAP. The statistical results of the tree census have been recorded on a large blue-print map, colors and symbols being used to designate the different species of trees registered by the survey. Every tree in the city south of Hampton Park has been indicated on this map. Many streets, unfortunately, show no trees. The general impression given by the color symbols is elms, elms, and poplars. The oaks of upper Rutledge Avenue make a good showing. Other trees are quite inconspicuous. The map, however, does not show the most serious conditions affecting the street trees.

CONDITION OF THE CITY'S TREES

A study of the survey reports, tree by tree, substantiated by extensive survey of the trees themselves, reveals an appalling condition. "Let live as may" seems to have been the watchword in the past.

PRUNING. Fully ninety-five per cent of the large trees are in need

of trimming, dead wood being common everywhere. Very great injury has been caused by improper pruning, dating back many years. Branches have been cut off so as to leave stubbs. These, rotting, have in hundreds of cases resulted in hollow trunks. An interesting case of a neglected stubb is seen in an elm from which a large branch was either cut or broken. No care being taken of the wound, the inner wood decayed, dirt settled in the hollow and by some means a china tree sprang up. Now appears the anomaly of a china tree growing out of an elm.

The custom of severely topping large trees has led to most ugly shapes, particularly among the poplars. Elms also have suffered and several buttonwoods been utterly disfigured. Much harm has been caused by horizontal pruning. A mistake of both present and past is allowing trees to head too low, in consequence of which their branches interfere with traffic and when cut off injure the shape of the tree.

BOXING. Another instance of neglect is shown in the outgrown boxes of many trees. Wire frames as well are constantly found cutting into the bark of trees. Young trees seem to be well planted and boxed and then left to grow as they can.

ELECTRIC WIRES. Every city has to meet the problem of adjustment between its trees and its electric wires. Perfect insulation must be insisted upon. This has not yet been achieved in Charleston.

TREE SURGERY Tree surgery is a comparatively modern practice and one which has in no case been employed in caring for the street trees of Charleston. Wounds are never painted over and trunk cavities are never cleaned out and filled up. Not less than seventy per cent of the elms of the city bear hollows due to either sunscald or the gnawing of horses. To preserve these trees skillful surgery must be employed. This will probably require the services of an expert.

CONCLUSION

In reviewing the results of the survey the most patent fact is the great need of better care of street trees. The authorities are ready to do their part; the public is interested. An active co-operation between the two and Charleston may have a right to be proud of its streets.

L. M. BRAGG.

LOCAL FAUNA

FURTHER BIRD NOTES AND CORRECTIONS

In the last issue of the BULLETIN it was erroneously stated that the Solitary Sandpiper is common on the sea-beaches. The birds recorded by the survey were seen around fresh-water pools on Sullivan's Island, and not on the beach. A specimen was taken by Master Rhett Chamberlain on September 11, 1909.

Through a clerical error, the Scarlet Tanager was reported in the same article as seen on April 10, 1909. This rare species has not been noted by the survey since April 29, 1908.

Among recent records of interest may be mentioned the late occurrence of the following winter visitants: Herring Gull, May 2; Myrtle Warbler, May 1; Goldfinch, May 5; White-throated Sparrow, May 6; Laughing Gull, May 6; Catbird, May 13; Carolina Rail, May 14.

Since the publication of the record for the Red Crossbill, another has come to light. Master Ned Hyer secured a specimen of this species in the city at some time during February, 1909, but, not knowing its importance, failed to report it. The specimen has since been accidentally destroyed.

An Indigo Bunting seen by Master Caspar Chisolm, May 10, 1910, near the pumping station at Goose Creek, is the only authentic record of the survey for this species.

Although the Coot was seen on several occasions during the summers of 1908 and 1909, no specimen was taken, and Mr. Wayne doubts that it was this species that was seen. He calls attention to the similarity in appearance between the Coot and the immature Florida Gallinule, and suggests that the latter would certainly be found, while the former is not known to occur in this region in summer. However, the taking of a specimen of the Coot at Otranto, May 14, 1910, shows that this species has not been confused with the Gallinule, and that it does occur much later than Mr. Wayne's records indicate.

The Blue Grosbeak, now rare in this region, has again been seen. On a trip to Otranto, May 1, 1910, Mr. Herbert R. Sass and myself found a male of this species, and later a female, in the old fields bordering the swamp.

F. M. WESTON, JR.

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

HISTORY OF THE MUSEUM
COLOR PHASES OF THE PINE SNAKE
CONCERNING THE POPINAC
LOCAL FAUNA

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

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WM. G. MAZÏCK.....	<i>Conchology</i>
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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 6 CHARLESTON, S. C., OCTOBER, 1910 No. 6

HISTORY OF THE MUSEUM

THE MUSEUM IN CHALMERS STREET

The loss by fire of all records of the Museum prior to 1865 gives more than a momentary interest to every item of information relating to its history which can be obtained, and this paragraph from the second page of the City Gazette of Monday, January 9, 1826, to which my attention was directed by Miss M. L. Webber, Secretary of the South Carolina Historical Society, is worthy of preservation.

COMMUNICATION

A large black Wolf killed near Goose Creek, was sent by Mr. Dees to the Museum a few days ago. A beautifully spotted Deer killed by Mr. Wilson was presented by Mr. Perry, planter. Also a female canvas back Duck, was sent to the Institution by Mr. Fisher Gadsden, and a pair of military Jack Boots, square toes, said to be 100 years old, were presented by Mr. Harleston. Several other curiosities worthy of notice, have been presented within these few days. *A Band of Music will attend at the Museum to-morrow evening.*

On the first page of the same paper, and in most issues throughout the month of January occurs this advertisement, from which much may be learned of the extent and diversity of the collections, which Mills¹ mentions as being at that time "an honor to the State:"

¹ Statistics of South Carolina, Charleston, 1826, p. 437.

THE MUSEUM


OF SOUTH CAROLINA.

In Chalmer's Street, (near the City Square,)

CONSISTING of an extensive collection of
Beasts, Birds, Reptiles, Fishes, Warlike
Arms, Dresses, and other **CURIOSITIES**—among
which are:

The HEAD of a New Zealand Chief
An Egyptian Mummy (a child)
The Great White Bear of Greenland
The Black and the Red Wolves of South Carolina
The South African Lion
The Duck Bill'd Platypus from New Holland
The Bones of an Ostrich as large as those of a
Horse
The Boa Constrictor or Anaconda Snake, 25 feet
long
The Gramphus Whale, 20 feet long
800 Birds, 70 Beasts, 200 Fishes
4000 Specimens of Minerals.
Shoes of the Chinese Ladies, 4 inches long
The Saw Fish — — — Saw 4½ feet in length
A large collection of views of the Public Build-
ings, &c. in Europe — — — and
A Fine Electrical Machine

The whole elegantly arranged in glass cases,
open every day from 9 o'clock, and brilliantly
illuminated every evening, with occasionally a
Band of Music.

 Admission 25 cents. Season tickets \$1.;
Children half price. f Jan. 6

The above is the second oldest accession list of the Museum collections yet discovered.

This, too, from the Charleston Courier of January 23 of the same year is interesting if not quite so valuable.

MUSEUM

VISITORS are requested not to touch any of the
Animals on the floor of the Museum, as these
Animals are newly put up and not dried; every thumb
or finger making an impression on the stuffed skin,
injurious to its natural appearance.

W. G. MAZYCK.

COLOR PHASES OF THE PINE SNAKE

One of the most popular members of the collection of living snakes in the Museum is a Florida Pine Snake (*Pituophis melanoleucus*), which has been in the collection since April, 1908, and has made many friends by its gentleness and attractive coloration.

In June, 1909, a specimen of this species was taken at Archdale, a plantation on the Ashley River about twelve miles from Charleston, by Messrs. Ned Hyer and B. and R. Chamberlain who presented it to the Museum. In July, 1910, two additional specimens were obtained from Walhalla, in the extreme northwestern part of the state. All of these specimens are now living in the Museum and show in a very interesting fashion the color variations of this species. The Florida specimen represents an extreme light phase and the Archdale specimen an extreme dark phase, while the Walhalla specimens are of an intermediate and more typical coloration. These variations are of such interest that it seems advisable to record them somewhat in detail, as follows.

The Florida specimen is immaculate porcelain white below, and dull white above, marked anteriorly with dull brown becoming a rich chestnut posteriorly. The Walhalla specimens are creamy white, strongly marked with dark brown above, and faintly below. The Archdale specimen is porcelain white below, marked and even banded with black, while above the black is continuous anteriorly, spotted with white in the middle of the body, and forming black bands alternating with white on the tail.

The top of the head and sides of the jaws are immaculate in the Florida specimen, while in the Walhalla specimens these parts are faintly marked with brown. In the Archdale specimen the top of the head is uniformly black and the sides of the jaws are distinctly marked with vertical stripes of black. The color of this specimen agrees closely with Holbrook's figure of a South Carolina specimen, but the black markings are figured as confluent and are much less extensive anteriorly than in the present specimen.

P. M. REA.

CONCERNING THE POPINAC

Editor of the Bulletin:

Among the specimens contributed for the Museum grounds by members of the Natural History Society, and listed in the March number of the Bulletin, was a "white opoponax (*Acacia*)", by Mrs. J. C. T. Though never having seen it, I am interested in the stranger, white acacia; and hope to elicit some information regarding it. My knowledge of the acacia family is limited to the little yellow, fragrant popinac, or opoponax (*Acacia Farnesiana*), so great a favorite in many of our city gardens. But from childhood I have been acquainted with the *Mimosa* (exotic), now so common in this country—a beautiful object indeed, with its graceful, pinnate, airy foliage, and sweet scented pink flowers. The long silken stamens, several hundred in number, impart to the flower a globose, yet extremely delicate appearance.

There is a native kindred species of *Mimosa*, *Desmanthus*, growing along the Mississippi River, which bears white flowers. What relation is the "white opoponax" to *Desmanthus*?

Our favorite little acacia, the popinac, has another pet name, which to me is quite puzzling, viz., opoponax. Whence is the origin? The association of this word with the little golden balls of delicious spiciness is not pleasing; and strange is the fact that there is on the market a choice perfume distilled from these flowers, supposedly, and labelled opoponax!

For some occult reason the term looms up as a secret enemy to be ferreted out and brought to light. So I got on the hunt with the encyclopedias, and discovered the interloper entrenched behind a huge parsnip! Jestings aside, it is found that *Opoponax* is a genus of Umbelliferous plants of which the parsnip is the type. The species from which the officinal gum resin is obtained is *O. chironium*, described as a very large, long, tap root from which the gum exudes when punctured for the purpose of collecting it. It is indigenous to Asia Minor, Turkey, and the East Indies.

We are told that this gum was very highly esteemed by the ancient physicians as an antiseptic, antispasmodic, etc.

The acacia family (*Leguminosae*, Sub Order *Mimosae*) is one of varied utility, furnishing many valuable gums, gum arabic perhaps the most familiar.

Mimosa is distinguished for the production of rosewood, from a Brazilian species.

E. L. H. WILLIS.

LOCAL FAUNA

Bob-white Breeding in the City.—That wild Bob-whites should not only live but actually breed in Charleston shows what delightful surprises the city bird observer meets with now and then. On March 19 Mr. William Barker saw a Bob-white in Major T. G. Barker's lot on Tradd Street. Although I kept a sharp lookout, I saw nothing of the bird until April 30, when two were observed. At about this time their clear ringing calls began to be heard and were thenceforward familiar bird music until about the middle of July. The birds were often seen, sometimes a pair, sometimes three, and once, on June 4, four. I heard rumors throughout the summer of young birds observed, but failed to substantiate the reports and saw no evidence of breeding on the part of the Bob-whites until October 5, when one young bird, about one-third grown and apparently just able to fly, was observed. Although silent and very shy at this season, the old birds are evidently still on hand, since I saw one of them less than a week ago (on Oct. 16). During their stay in the city, I have seen the Bob-whites in my lot and in three adjoining lots. They have evidently ranged very widely, being seen and heard as far away as Meeting Street and South Battery near King. The record is a most interesting one, though not unprecedented. Mr. Edward L. Wells informs me that about 1888 a covey of twelve or fourteen birds inhabited Major Barker's lot. Mr. Ellison A. Smyth, Jr., in a list of the birds of Charleston published in "The Budget" of August 12, 1888, states that a pair at liberty bred in a yard on Legare Street. On February 14, 1899, when the weather was bitterly cold, I saw a solitary Bob-white perching on a low brick wall between Major Barker's lot and the property to the west.

The Cliff Swallow in the City.—On August 15 I saw perched on the top of a tall pole in the Rutledge lot on Tradd Street a bird which apparently was the Cliff Swallow. I examined the bird carefully with a telescope and as it was not more than a hundred yards distant was able to see every marking distinctly. The following is a brief description: Back steel-blue, the feathers glinting in the sun; forehead white, this marking showing very distinctly; throat and breast brownish with a darker ring, forming a crescent shaped frontlet; beneath white or light gray marked with rufous. The Cliff Swallow is very rare in this state (See Wayne, Birds of South Carolina, page 139). Although I feel sure that the bird

which I saw was a Cliff Swallow, the record can hardly be admitted as absolutely authentic.

The Fall Migration in the City.—Unusually warm weather during practically the whole of the first three weeks of October caused a strange cessation in the Southward migration as observed in the city. During September the migration proceeded actively and an unusual number of migrants were seen. In my garden I saw more Prothonotary Warblers and Grinnell's Water Thrushes than ever before. In October, however, the movement seemed to cease almost entirely and very few migrants were observed.—HERBERT R. SASS.

Breeding of the Barn Owl.—Mr. Arthur T. Wayne has published an account¹ of the finding of a set of eggs of the Barn Owl (*Aluco pratincola*) on this coast during the month of September. He also refers to Audubon's discovery of a nest containing young birds which he (Audubon) concluded were hatched in September. Mr. T. Gilbert Pearson² records this bird as breeding on the coast of South Carolina in April. In view of this a recent record (confirmatory of Mr. Wayne's record) may be of interest.

On September 24, 1910 after rowing across the Ashley River from Charleston, I landed at the Wappoo Fertilizer Mills, an abandoned and much dilapidated group of buildings. On the top of one of these buildings I found a set of four eggs placed in a large box which was supported by huge beams. As I approached the box an old owl jumped out and flew through a broken window. On examining the interior of the box I found that its contents were mostly old bones and feathers, while around the box and below some of the rafters I saw only disgorged hair and bones. This indicates that the old owls tear the flesh from the bones to feed their young, while they themselves swallow bones, feathers, and all. The building has probably been abandoned for about fifteen years and I suppose that the owls have been breeding in it ever since. This would account for the great accumulation of bones and feathers. I also found in this box parts of the Meadowlark (*Sturnella magna*), the Green Heron (*Butorides virescens*) and the Marsh Hen (*Rallus crepitans* or *R. c. waynei*). Below the box I saw the skin of a black rat, and found the skull of a sparrow. Of the eggs taken, two were fresh, the third nearly so, while the fourth contained a small embryo.—RHETT CHAMBERLAIN.

¹ *Auk*, XXV, 1908, 21-24.

² *Auk*, XXV, 1908, 316-317.

Wilson's Phalarope—A New Species for South Carolina—This summer while on Sullivan's Island my brother and I made a special effort to gather information about certain species of shore birds, in order to fill in some of the gaps in the Natural History Society's records. The most important result was obtained on the seventh of September, 1910, while shooting on the eastern end of the Island, when I killed a Wilson's Phalarope. The bird is a male in winter plumage. It had alighted with about fifteen Yellowlegs on the edge of a fresh-water pool left by recent heavy rains. The pool is among sand dunes a few hundred yards from the nearest house and near the car lines. Mr. Arthur T. Wayne, in his "Birds of South Carolina," gives an account of the capture of a Red Phalarope near Mt. Pleasant, also of a Northern Phalarope which his cat caught, but Wilson's Phalarope has not before been recorded in South Carolina, or indeed on the Atlantic coast between New Jersey and Argentine.

Pectoral Sandpiper.—On August 8, my brother shot a Pectoral Sandpiper, which is the first recorded by the Survey. We found these abundant about the fresh water pools from that date until along in September.

The Pied-billed Grebe—My brother also shot on September 9, a Pied-billed Grebe in the channel between Sullivan's Island and the Isle of Palms. I saw two of these birds near the Ferry Wharf on September 23. This bird is very seldom seen in salt water.

Snowy Heron.—Early on the morning of September 14 my brother and I saw a pair of Snowy Herons on the front beach. This is a late record, the latest for the Survey heretofore being August 12.

Carolina Rail.—On August 14, Chalmers McDermid picked up a very thin Carolina Rail on the front beach. This bird appeared to have been washed up on the beach. The records for the species by the Survey are September through April, so that this is a very unusual occurrence.—BURNHAM CHAMBERLAIN.

Virginia Rail.—The Virginia Rail is probably common in the old rice plantations around Charleston, although it has been recorded by the Natural History Society's survey but once until I took a specimen on September 28, 1910, in the marshes near Wap-poo Cut. Doubtless these rails may be found abundant in this locality, as I heard quite a number but was unable to flush more than the one.—CASPAR S. CHISOLM.

Macgillivray's Seaside Sparrow.—On September 5, Mr. F. M. Weston, Jr., took a specimen of an adult Macgillivray's Seaside Sparrow (*Passerherbulus maritimus macgillivrayi*). This is the first record of the Natural History Society's survey for this sub-species, it not having been previously distinguished from the Seaside Sparrow (*P. maritimus*). Several other specimens have since been taken by Messers Rhett and Burnham Chamberlain, one on Sullivan's Island, and others on Plum Island, where they have been abundant. Of these, two were birds of the year, one having the tail feathers but partly developed. This sub-species may be distinguished from the Seaside Sparrow by the blackish mesial streak on the central tail feathers. Mr. Weston has presented his specimen to the Museum and Master Rhett Chamberlain has given one of the young birds taken by himself and his brother.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distributions, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

Volume I of this series began in April, 1905, and is complete in 5 numbers. Subsequent volumes consist of 8 numbers each. A title page and index to the first five volumes was published in the issue of December 1909.

Sent prepaid to any address for 25 cents a year. Single copies 5 cents each.

(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I Birds of South Carolina, by Arthur Trezevant Wayne.
Pp. XXI + 254. Price: paper, \$2.75; cloth, \$3.25.

II Catalog of the Mollusca of South Carolina, by William G. Mazýek. *In preparation.*

III Birds of the City of Charleston, by Herbert Ravenel Sass. *In preparation.*

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

THE COMMUNITY AND THE MUSEUM
BETTER STREET TREES
LOCAL FAUNA
NOTES FROM THE MUSEUM

Volume VI, Number 7

NOVEMBER, 1910

The Charleston Museum

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BULLETIN

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VOL. 6 CHARLESTON, S. C., NOVEMBER, 1910 No. 7

THE COMMUNITY AND THE MUSEUM

The first issue of the BULLETIN, published in April, 1905, contained a discussion of the work of natural history museums. At that time the Museum was known as The College of Charleston Museum: it has since become The Charleston Museum, and its scope has broadened to include all the functions of a municipal museum. The possibilities of such an institution as an expression point of community action are just beginning to be realized in Charleston, and the time seems opportune for their discussion.

The scope of museums depends upon whether they are private, college or university, society, or municipal museums. This discussion is applicable primarily to municipal museums. These institutions have received increasing appropriations from tax moneys in proportion as they have made themselves useful and profitable to the general public. Their functions as depositories of valuable scientific material have not been discontinued, but, since technical scientists form but a small proportion of any community, study collections have been established where students may have facilities for intimate examination of material which is chiefly of technical interest.

For the exhibition collections material is carefully selected which will be useful for public instruction and recreation. It

is realized that exhibits must be attractively installed in order to stimulate a desire for information, and to satisfy this desire as soon as created descriptive labels are employed, the composition and printing of which involve many of the principles of preparing advertising copy. A valuable accessory to the descriptive label is the museum library, where full information may be had upon subjects related to the exhibits and where tired sightseers may find interesting reading.

These principles of museum administration are now generally recognized, as well as the advantages of the further plan of introducing economic and industrial exhibits in connection with raw materials. The term "introducing" is used advisedly, for the conception of the museum as an important department of the public service whose proper work begins with a survey of natural products and resources, arranges and describes them in a scientific manner, and exhibits fully their relation to human needs has been attained by few museum workers and by still fewer communities. This idea does not lead to the commercial museum as generally understood, but rather to a museum which shall so balance pure and applied science as not only to satisfy the devotees of both but to bring them to a better understanding of each other. The successful development of this idea inevitably means better financial support for pure science and at the same time more practical science. From the point of view of the museum administrator this is merely a problem of efficiency. From the point of view of the average tax-payer it is simply making the museum practical. The community which grasps the possibilities of such a movement will have discovered a new and important factor in civic progress. It will make its museum a permanent exposition of its resources and industries and in doing this will learn the value of scientific accuracy and of investigation in pure science as the basis of all applied science,

and will therefore be willing to support the scientific investigations of the museum. It will take pride in the extent and reliability of its exhibits and will utilize them for the education of its citizens as well as for the information of strangers.

Recent years have seen much progress in the correlation of public school education with practical life. Indeed, it is probable that disciplinary training has been unduly sacrificed to informational studies, but the fact remains that the graduates of our public schools should have the information necessary to make them intelligent citizens. At present they seldom acquire any knowledge of the fundamental economic conditions upon which the business of their community is based. These economic conditions are in turn largely dependent upon natural resources, and museums which study and exhibit natural resources can economically and efficiently instruct, and at the same time entertain, school children by means of exhibits, lectures, and loan collections. In this way practical results can be attained with little encroachment upon the already crowded curriculum of the schools, and the museum will prove a positive factor for better citizenship.

Museums also afford facilities for promoting many reforms and progressive movements which require popular coöperation. These possibilities have already been shown in Charleston by the tuberculosis exhibit and by the movement for better trees. These are, however, essentially community activities, and it is the purpose of this article to show that the Museum may lead in their organization and afford an efficient means for their prosecution, but that success can only be attained with the moral and financial support of the community. The responsibility rests upon the people and the people must act through the Museum if its facilities are to be effectively used.

The enthusiastic reception of this plan of work by the commercial organizations of Charleston at the present time leads to the hope that the Museum may become a far more useful public servant than in any period of its long and honorable history.

P. M. REA.

BETTER STREET TREES

In the May issue of the BULLETIN we published the results of a survey of the street trees of Charleston which had been conducted by the Natural History Society under the auspices of the Museum. This survey showed that of approximately four thousand trees more than fifty per cent were elms, twenty-five per cent Carolina poplars, less than ten per cent oaks, about five per cent hackberries, four per cent palmettoes, three per cent buttonwoods, and the remainder distributed among eighteen species. It was further found that most of these trees were in poor condition, and that the American elm seldom reaches its best form here and requires much care, while the Carolina poplar is an absolute failure as a street tree.

In view of these unsatisfactory conditions it was a cause of much gratification when, a few weeks after the results of the survey were made public, a trained forester was employed to take charge of the city's trees. The wisdom of this step is abundantly shown by the improved condition of the trees as a result of cement work and removal of dead wood, and by the success of an arrangement by which all trimming by the street railway company is done under the supervision of the forester.

The solution of the tree question is, however, still hindered by the small appropriations for street planting and by the indifference of the public to the condition of the trees. To overcome

these difficulties a mass meeting was held at the Museum on Monday, November 14, at which it was announced that for every dollar sent to the chairman of the street tree commission a tree would be planted on the streets. It was further provided that requests for particular species or for trees to be planted at a designated place or to replace defective trees, will be granted subject to the approval of the forester.

This plan places the responsibility for lack of trees upon the community, and has the advantage of securing with every new tree the interest of a citizen in the care of trees. It has been successfully carried out in other cities, notably in Providence, R. I., during the past summer, and should be effective wherever a well-organized campaign is conducted. The active coöperation of organizations and individuals throughout the city is urgently desired in order that the movement for better trees in Charleston may succeed.

LOCAL FAUNA

White Pelican in South Carolina.—On October 26, a White Pelican (*Pelecanus erythrorhynchus*) was shot in the Santee swamp by a farmer, from whom it was obtained by Mr. William C. Smith of Charleston, in whose possession it now is. The bird measures approximately sixty-four inches in length as mounted, and the bill thirteen inches. The primaries are black, and the bill, pouch, and feet are yellow. These characters prove conclusively that the bird is not an albino Brown Pelican (*P. occidentalis*), and thus establishes a record for a species which has apparently not been taken in South Carolina for nearly a hundred years. Mr. Wayne states¹ that he has never seen the White Pelican on our coast, and quotes Bachman's account as given by

¹ Birds of South Carolina. *Contr. Chas. Mus.* I, 1910, 12.

Audubon. Dr. Bachman procured two specimens on July 1, 1814, from a flock which he believed had laid eggs on the banks off Bull's Island.

The specimen in Mr. Smith's possession was apparently blown here by a West Indian hurricane which passed up the coast immediately before it was taken.

P. M. REA.

NOTES FROM THE MUSEUM

This department has been omitted from recent numbers of the BULLETIN, and we are glad to learn that it has been missed by our readers. It is intended to contain news of the activities of the Museum.

Among accessions of last spring not heretofore acknowledged are a mounted Boat-tailed Grackle, the gift of Mr. W. A. Fladger; an unmounted skin of a Ruddy Duck, from Mr. Chalmers McDermid; and a skin of the Least Bittern, taken by Mr. Rhett Chamberlain. These birds are all from the vicinity of Charleston. Professor D. S. Martin presented a miscellaneous collection of birds, consisting chiefly of foreign species, especially Brazilian humming birds. A Great Horned Owl, received in June from Mr. Earle Sloan, was kept alive for a time in the Museum.

Recent accessions include a Xiphioid Whale head from the Bolton phosphate mine on Stono River. This is the gift of Capt. Frank E. Taylor, and is the seventh of these heads in the museum collection. Additional specimens are much desired to afford material for study of these forms.

Mr. Wendell M. Levi, of the College of Charleston, has presented a collection of bird eggs representing nearly a hundred

species, the greater number from the vicinity of Sumter, S. C. Among these are eggs of the Blue Grosbeak (*Guiraca caerulea*), taken from two nests. The identification is based upon descriptions of the birds and nests, as well as upon the characters of the eggs. This record is of special interest since Mr. Wayne has found but one nest of this species¹. Mr. Levi is assisting in the preparation of an exhibit of eggs of local birds.

A framed Audubon plate of the Rose-breasted Grosbeak has been presented by Mr. Caspar S. Chisolm, a member of Section B of the Natural History Society. This is a lithographic copy of the original plate, and is hung in the reading room with three other plates of the same series, which were presented by Mrs. Henry S. Holmes in 1908.

A set of the works of Bradford Torrey, given in March, 1910, by Miss Henrietta Murdoch, has been much used by members of the Natural History Society.

A large part of the time of the Museum staff has been devoted for a year past to the preparation of publications, and it is with much gratification that these have been received from the press. Mr. Wayne's book on the Birds of South Carolina, published as the first of a new series of "Contributions" has been very favorably received and fills a long-standing need for an accurate and convenient reference work on the birds of the state. There has also just come from the press A Directory of American Museums of Art, History, and Science, compiled by Professor Rea for the American Association of Museums, and published for the Association by the Buffalo Society of Natural Sciences.

On Tuesday evening, November 22, the Charleston Advertising Club held one of its regular meetings at the Museum,

¹See Birds of South Carolina. *Contr. Chas. Mus.* I, 1910, 132.

when plans were laid for raising a fund for the installation of the old collections of the Museum and for the preparation of exhibits of local industries in relation to natural resources. Before the meeting members of the Club inspected the working equipment of the Museum and were initiated into some of the details of its administration. The interest and support of such a body of practical business men augurs well for a successful winter's work.

The annual Thanksgiving Day field trip of Section A of the Natural History Society consisted this year of a visit to the grove of Walter's Pine (*Pinus glabra*) on James Island. The party was taken by launch through Wappoo Cut and down the Stono River, and a brief out-door meeting was held on landing. The trip was considered unusually interesting.

The Charleston Museum

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 6 CHARLESTON, S. C., DECEMBER, 1910 No. 8

BIBLIOGRAPHY OF THE SYLVA OF SOUTH CAROLINA

While gathering material for a working bibliography of the sylva of South Carolina, I have been led by the growing interest of the subject to examine many of the early documents relating to the history of South Carolina. These I find to contain references to our native trees, frequently of such interest as make it seem desirable that they be brought together and made accessible to the student of the botany of the state. My researches have extended over the period between the discovery of the South Atlantic coast by the Cabots in the year 1498, to the close of the eighteenth century. I have, however, examined very few Spanish documents, reserving the accounts of early Spanish explorations for further study. The works consulted are to be found in original or reprint form in the collections of the Charleston Library Society, of the South Carolina Historical Society, or of the Charleston Museum.

EARLIEST EXPLORATIONS

No definite statement as to the flora of our state occurs in the writings of the earliest explorers. The Cabots left no description of what is now South Carolina. A Spaniard, Lucas Vasquez d'Ayllon¹, in 1520, discovered the mouth of the pres-

¹ Va. Hist. and Phil. Soc., An account of discoveries in the West until 1519, and of voyages to and along the Atlantic Coast of North America. 1848, 295-9.

ent Combahee River, which he named the Jordan. Vasquez visited this region several times, but seems to have been more interested in carrying away the natives to the South American mines than in noticing natural resources. His discoveries, however, became widely known throughout Europe and drew other adventurers to this region.

Ferdinand De Soto, on his march to the Mississippi, in 1540, passed through the upper part of South Carolina, and it is possible that Biedma¹ refers to our native *Osmanthus americanus* when he speaks of De Soto's finding "interred two hatchets from Spain, for cutting wood, a chaplet of berries of the wild olive tree and some small pearls like those which they bring from Spain to use in exchanges with the Indians. We thought that they had procured all these objects in trafficking with the people who had accompanied the licentiate Ayllon."

FRENCH EXPLORATIONS

John de Verazzano was sent out by Francis the First, King of France, to explore the coast of North America. In a letter to the King under date of July 8, 1524², Verazzano describes graphically the country about Cape Fear in North Carolina, but seems not to have landed farther south. His description, however, applies so well to our own coast that I quote from it, particularly as it is the earliest account I have discovered. Verazzano pictures the country as being "covered with immense forests of trees, more or less dense, too various in colours, and too delightful and charming in appearance to be described" and "adorned with palms, laurels, cypresses, and other varieties unknown to Europe, that send forth the sweetest fragrance to a great distance."

¹ Va. Hist. and Phil. Soc., An account of discoveries in the West until 1519, and of voyages to and along the Atlantic Coast of North America. 1848, 385.

² Ibid, 302-319.

It is from the Narrative¹ of the first settlement made in South Carolina that we get the clearest view of the country at that time. In 1562, a party of French Huguenots under the command of Jean Ribault sailed up the coast from the present Florida in search of the river named by Vasquez the Jordan, and, thinking they had found it, renamed it the Port Royal. Here they went ashore "where we found the place as pleasant as was possible, for it was all covered over with mighty high oaks and infinite store of cedars, and with Lentishes growing underneath them, smelling so sweetly, that the very fragrant odor only made the place seem exceedingly pleasant." Of a nearby island the Narrative tells us: "On every side there is nothing to be seen but palm trees, and other sorts of trees bearing blossoms and fruit of very rare shape and very good smell." Further up the river they found an island which they called "Isle of Cedars" as they "found nothing but tall cedars."

Months later, after Ribault had returned to France and want had overtaken the small colony left behind, it was decided to build a ship in which to sail home. For this the settlers cut pine trees for rosin "out of which they drew a sufficient and reasonable quantity to bray the vessel." They also "gathered a kind of moss that groweth on the tree of this country, to serve to calk the same withal."

The disastrous fortunes of this Port Royal colony discouraged French colonization and the next descriptions we have of South Carolina come from the records of English explorers, although the region about Port Royal and St. Helena continued to be visited by the Spaniards.

¹Narrative of Ribault's whole and true discovery of Terra Florida, as far north as 36 degrees, and the founding of the first settlement of French Protestants in America 1562. Reprinted in Courtenay, Wm. A. *Genesis of South Carolina*. 1907.

ENGLISH EXPLORATIONS

In 1568-9 a Davyd Ingram¹ purports to have traveled by land from the Gulf of Mexico to Cape Breton, thus passing through upper South Carolina. His "relation" is a marvelous mixture of observation and imagination. He does not distinguish between different sections of the country unless it be North Carolina, but possibly the palm of which he states "the branches of the toppe of this tree are moste exelent meate Rawe" may be our cabbage palmetto. Except for this tale of Ingram's no further narratives appear until nearly a century later, when the serious colonization of South Carolina by the English was undertaken.

In 1663 William Hilton² visited Port Royal. Of that region he writes: "Now our understanding of the land of *Port-Royal*, River *Jordan*, River *Grandie*, or *Edistow* is as followeth: The Lands are laden with large tall Oaks, Walnut and Bayes, except facing on the Sea, it is most Pines tall and good . . . The Countrey abounds with Grapes, large Figs, and Peaches."

Robert Sandford³ in 1666 made an exploring voyage along the South Carolina coast and was enthusiastic over the richness of the soil and wealth of plant life. Of the Edisto River region he wrote: "On the Outside of the woods some single scattring Pine trees but of the sort which is called Spruce. The rest and the Generallity of the timber being Oake, Maple, Ash, Wall-nutt, Popler, Bayes, & the trees tall and straight but not very large, growing closer together than I have seene in any other

¹The land travels of Davyd Ingram and others in the years 1568-9 from the Rio de Minas in the Gulph of Mexico to Cape Breton in Acadia. Reprinted in Weston, P. C. J. Documents connected with the history of South Carolina. 1856.

²Hilton, William. A true relation of a voyage upon discovery of part of the coast of Florida, from the lat. of 31 deg. to 33 deg. 45 m. north lat. Reprinted in Shaftesbury papers. *Coll. S. C. Hist. Soc.* V, 1897, 18-28.

³Sandford, Robert. The relation of a voyage on the coast of the Province of Carolina formerly called Florida in the continent of the Northerne America from Charles River oere Cape Feare in the county of Clarendon and the lat: of 34: deg: to Port Royall in the north lat: of 32: d: begun 14th June 1666, 57-82.

part of this Province (the reason I guesse of their being so slender).''

Farther up the river in what he calls the "pine swamps" he found "alsoe Oake and severall other timber trees of a very large seize." He confirms Hilton's report of finding peaches and figs: "I sawe here besides the great number of peaches which the more Northerly places doe alsoe abound in some store of figge trees very large and faire both fruite and plants and diverse grape vines which though growing without Culture in the very throng of weedes and bushes were yett filled with bunches of grapes to admiracon." On the coast islands he notes "live Oake and large Cedar and bay trees."

PERIOD OF SETTLEMENT

Both Hilton and Sandford were exploring in the interests of the Lords Proprietors of Carolina who, favorably impressed with their accounts of Port Royal, sent out the colony which settled at Old Charles Town in 1670, but which first went ashore at St. Helena, where we learn¹ that "ye Land was good Land supplied with many Peach trees, & a Competence of timber a few figg trees & some Cedar here & theire." Occasional references to trees appear in the documentary records of the settlement at Charleston, as: "The Country proves good beyond expectation and abounds in all things as good Oake, Ash . . ." ² At one time Stephen Bull³ writes: "this next yeare I brought hitherseu'all trees as orrenge Lemon Lyme Pomecitterne Pomegrainett ffiggtrees & Plantons & they like the ground & thrive & flourishe very bravely;" and again he gives the information that "Acorns" and "Hiccory Nutts" are "very good feedings for hoggs." The "first fruits" sent from the province were "12 Cedar Planks" presented by Sir John Yeamans⁴ to Lord

¹ Shaftesbury papers, 165-8.

² Ibid, 188.

³ Ibid 193, 223, 275.

⁴ Ibid, 220, 225.

Ashley. After this there is frequent mention of timber exports. Cedar appears to be highly valued.¹

Mr. Mathews² seems to have been more interested in trees than the other colonists, and in various letters to Lord Ashley enumerates many, even occasionally distinguishing species, as: "white, red, black water Spanish, & liue oak." Practically no other mention of trees occurs in the Shaftesbury Papers.

The early references to South Carolina trees we have seen to be merely incidental in the narratives of explorers. Next came a period of settlement when men's minds were concerned with the practical questions of timber and cultivation. And following that we come to a period when every effort was being made to draw colonists to the new country, and numerous pamphlets advertising the province were circulated in England. Several of these are reprinted in Carroll's Historical Collections of South Carolina,³ and give more extensive, though occasionally unreliable, accounts of the trees than had before appeared. Similar material is to be found in Ogilby's America, 1671; The Present State of Carolina, by R. F., 1682; and in Carolina Described more fully than heretofore, by an anonymous writer, 1684.

JOHN LAWSON

More ambitious than any of these and of greater scientific value is Lawson's account of his voyage to Carolina.⁴ He gives the usual casual references to trees, but further, under a section "Of the Vegetables of Carolina," supplies a descriptive catalog of all trees known to him in Carolina. While employing few

¹ Shaftesbury papers, 270.

² Ibid, 333, 335, 347, 354.

³ [Wilson, Samuel.] An account of the Province of Carolina in America. 1682. [Sheel, Thomas]. Carolina. 1682. Archdale, John. A new description of that fertile and pleasant Province of Carolina. 1707. Purry, Peter. . . . A description of the Province of South Carolina, drawn up at Charles-Town, in September, 1731.

⁴ Lawson, John. A new voyage to Carolina: containing the exact description and natural history of that country . . . and A Journal of a thousand miles travel'd thro' several nations of Indians. 1709.

scientific names. Lawson does distinguish species, mentioning no less than ten oaks. Much curious information about native and exotic trees gives a quaintness to the work without detracting from its value as the first attempt to give anything like a complete list of the trees of South Carolina. Lawson states in his introduction that he has treated the natural products of South Carolina in the section relating to North Carolina, not considering it necessary to make any division "since the product of South and North Carolina is the same." Lawson's work marks a new period in the history of our native trees and Lawson himself stands as our first botanist.

MARK CATESBY

Lawson's contribution appears slight when compared with that of the illustrious traveler who followed him. Mark Catesby published in 1731 and 1743 the two folio volumes of his *Natural History of Carolina, Florida and the Bahama Islands*, a work treating of both flora and fauna, and illustrating in color each species described. The color plates represent the first attempt to illustrate the flora of South Carolina, and while Catesby is too often careless about specifying the distribution of his species, general deductions lead to the conclusion that a large part of the trees are described from South Carolina. Unfortunately, the descriptions are frequently inadequate and unscientific, but the plates are fairly accurate and in spite of certain conventionalities in drawing, as, for instance, the formal method of depicting leaf veining, are generally unmistakable. They have proved of inestimable value to later students. Linnaeus' reference to Catesby's plate of the Water Oak, to cite a single example, fixes the determination of his *Quercus nigra* as referring to that species and not to the Black Jack Oak (*Q. marilandica* Muenchh.). Catesby pictured the major-

ity of the oaks known to occur in the state, and it is fitting that Michaux should have named a very characteristic species in his honor, *Quercus catesbaei*, the Turkey Oak.

Catesby was familiar not only with common but also with many less abundant species. The Dahoon Holly (*Ilex cassine* Linn.) he describes as "Rare, seen only on Col. Bull's Plantation on Ashley River, where it grows in a bog." This holly is indeed so rare in the coast region to-day that I do not know of its being found growing in a wild state these many years.

Catesby, however, does not confine himself strictly to native trees. In discussing introduced species, he speaks of peach trees growing so abundantly that "were it not certain that they were first introduced from Europe one would be inclined to think them spontaneous." Of the fig tree we learn: "An excellent liquor is made of Figs, resembling Mum in appearance and taste. This is most practised on James Island, near Charles-Town."

Two copies of Catesby's Natural History are accessible in Charleston, one in the Charleston Library and the other, owned by Mr. W. G. Hinson, deposited in the Charleston Museum. Both belong to the edition of 1771, giving the text in English and in French. Catesby also wrote the Hortus Britanno Americanus, or a Collection of 85 Curious Trees and Shrubs, the Production of North America, Adapted to the Climate and Soil of Great Britain. The date of this work is doubtfully given as 1737.

LAURA M. BRAGG.

(To be continued in February.)

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

REPORT OF THE DIRECTOR OF THE MUSEUM
FOR THE YEAR 1910

Volume VII, Number 1

JANUARY, 1911

The Charleston Museum

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Director

PAUL M. REA

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Honorary Curators

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BULLETIN

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THE CHARLESTON MUSEUM

VOL. 7 CHARLESTON, S. C., JANUARY, 1911 No. 1

REPORT OF THE DIRECTOR OF THE MUSEUM FOR THE YEAR 1910

The long-delayed appearance of the first of a series of research publications is the principal event of the year 1910. Less progress has been made toward installation of exhibition collections than was hoped for, but in the closing months of the year a much closer affiliation of the Museum with the business organizations of the city has been attained, and the prospect for larger financial support and increased public interest must be considered distinctly encouraging.

SCOPE OF THE MUSEUM

The long and honorable history of the Museum affords an extremely interesting study of the relation of the institution to the community. Beginning as a supplementary feature of a library society whose object was the promotion of all forms of culture among its selected membership, the Museum became the primary interest of a literary and philosophical society which secured for it a generous measure of municipal and state financial assistance and made it, about the year 1825, the center of a popular interest such as has seldom been aroused. Unfortunately popular favor is not always constant, and the Museum became for some years an adjunct of a medical college. In 1850 it entered upon more than a half-century of development as a part of the College of Charles-

ton, which it would still be if the College were able to provide for its financial support. The present organization as a municipal museum has greatly broadened the field of activity and carried at the same time a new obligation to make the work of the Museum an adequate return to the general public for the tax moneys with which it is supported. The full realization of this obligation opens a wide opportunity for practical administration. It requires a close analysis of local conditions and the seizing of opportunities as they arise, without in any way losing sight of the broad principles for which the Museum stands. As a municipal museum it should be the clearing house of a wide range of progressive civic movements in which accurate knowledge, publicity, and education are essential. Such a policy will make pure science of practical value to the community and thus secure more generous support for this phase of museum work.

FINANCES

The appropriation of \$2500 provided by City Council for the maintenance of the Museum has failed to cover the expenses properly chargeable to this account by approximately \$575, and it has been necessary to borrow money to this amount. The regularity with which a deficit occurs in this account shows that the appropriation is inadequate under present conditions and will be still more so when the work of the Museum is increased by installation of exhibits. A petition has been addressed to Council by the director praying for an increase in the maintenance appropriation to \$4000. A further petition endorsing this request and urging favorable action has been presented to Council by the Chamber of Commerce, the Advertising Club, and the Retail Merchants Association.

The general account has received from memberships, etc., \$574.42. A list of members for the year will be found on the third page of the cover. This list could be much larger if time for solicitation of memberships were available.

ADMINISTRATION

While a large amount of routine work has been accomplished during the year, no funds whatever have been available for either improvements in the building or installation of collections.

During the closing months the work of the director's office has been reorganized in preparation for increased activity in all departments during the new year.

The time of the librarian has been occupied to an increasing extent with the work of public instruction, and with such success that an assistant in the library is needed in order that the work of public instruction may be developed. It is desirable that this department continue to be intimately associated with the library, since the books form the sources of the descriptive labels of the exhibits and the means of extending the interest which they arouse.

The need of a general curator is felt in many ways, and in the preparation of new exhibits of local subjects a good collector and photographer will be required. These are problems to be solved as the new year develops, and will be largely influenced by the success of the effort for a larger maintenance appropriation. When the exhibits are opened to the public a doorman will also be needed.

The director represented the Museum at the fifth annual meeting of the American Association of Museums, held in Buffalo, May 31-June 2, when he was honored by re-election as secretary of the Association.

MUSEUM GROUNDS

Gratifying progress has been made in planting the grounds about the Museum with ornamental and botanically interesting trees and shrubs, and the director desires to extend the thanks of the Museum to many friends who have given plants for this purpose, to the Park Board for ready coöperation in carrying out the plans of the Museum, and to Mr. Philip P. Mazyek for continual assistance in the care and planting of the grounds.

GEOLOGY

Dr. Daniel S. Martin, honorary curator of this department, spent two months in accessioning material given by himself and others. Cards were completed and filed for 517 rocks and minerals and 500 fossils. Special mention should be made of a handsome collection of minerals presented by Mr. F. P. Graves of Doe Run, Mo., which is not included in the statistics for the year because not yet cataloged by Dr. Martin.

An unusually complete and instructive carbon collection was prepared for exhibition early in the year. The series includes all the intermediate stages between sphagnum moss and wood through peat and coals to jet and graphite, with subsidiary series of the mineral waxes and fossil resins. Other equally interesting and instructive exhibits are ready for installation as soon as cases can be prepared.

CONCHOLOGY

In preparation for installation of a local shell exhibit, a catalog of the Mollusca of South Carolina has been prepared by Mr. William G. Mazyck, honorary curator of the department. In attempting to bring together local specimens for this exhibit it is significant of the difference between the old and new view-points that among several thousand shells no more local specimens have been found than can be collected in a week on the sea beaches. As in all other departments of the Museum the present policy will be to make the collections work outward from local material to selected and instructive foreign specimens.

This department is indebted to Miss Elizabeth M. Klinck, as well as to the honorary curator, for much tedious sorting and re-arrangement of specimens.

ORNITHOLOGY

The collection of local birds has been temporarily installed in a case built for an agricultural exhibit; and an exhibit of local

nest and eggs, including a valuable series given by Mr. Wendell M. Levi, is in preparation. The mounted birds have been extensively used in educational work, and the collection of skins has been rearranged and augmented by a number of important specimens taken in the biological survey. All the birds from the old museum have now been transferred to the new building.

LIBRARY

Practically no accessions have been made in the library because of lack of funds. Much has been accomplished however in improving the condition of the books. About 385 volumes have been bound in pamphlet binders, and 800 other volumes have been prepared for binding. In January about 500 volumes of publications of learned societies, which had been inaccessible, were placed on the shelves, and in February a large number of United States government publications was brought from the college and shelved. These additions necessitated a general redistribution of the shelving. Further binding should be provided for early in the coming year.

The library catalog has not made the progress expected at the beginning of the year because of the large number of demands made upon the librarian for work in other departments of the Museum. The addition of an assistant would enable the routine work to be carried on effectively and at the same time continue the desirable close relation between the library and public instruction and installation.

The interest aroused by the public instruction work has made it desirable to loan books occasionally for use outside the building. There can be no doubt that the value of the library to the public would be greatly increased by placing a part at least on a circulating basis, and the location of the Museum is ideal for this purpose.

The library is indebted to Miss Maria Gibbes for a copy of Lewis R. Gibbes rare "Catalogue of the Phænogamous Plants of Columbia and Vicinity;" for several other pamphlets by Professor

Gibbes; and for an invitation sent to him in 1852 to be present at the opening of the Museum at the College of Charleston, framed beside an invitation sent to Miss Gibbes in 1908 on the occasion of the opening of the Museum library in the present building. Miss Henrietta Murdoch has given the *National Geographic Magazine* and a set of Bradford Torrey's books, and Mr. Fitzhugh Salley has again given a subscription to the *Auk*. A framed lithographic copy of Audubon's plate of the Rose-breasted Grosbeak has been presented by Mr. Caspar Chisolm and hung in the reading room.

BIOLOGICAL SURVEY

Particular attention has been given this year to a survey of native and naturalized trees growing wild in the vicinity of Charleston, with the result that fifty-six species have been added to the records, making a total of one hundred and one. One hundred and forty-five species of plants, exclusive of trees, have also been recorded, and much material on hand has not been worked up. The oaks and pines have received special study, and considerable time has been given to examination of exotic species found about Charleston but not included in the survey.

The most laborious achievement of the department is a survey of the street trees of Charleston, carried out under the direction of Miss Bragg, by members of the Natural History Society. This survey involved an inspection of every street tree within the city limits and the filing of a report upon its condition. A summary of the results was published in the *BULLETIN* for May, and has proved most useful in subsequent tree work.

Important additions to the records of butterflies, spiders, amphibians, and reptiles have been made by the younger members of the Natural History Society. Over half of the frogs and toads known to occur in the coast region have been received and a large number of unidentified spiders is awaiting study. A total of nineteen species of snakes and eighteen of mammals is now recorded. In considering these figures it should be remembered that no systematic means of collecting have been available and

that these records were obtained as an incident in other work.

The bird records (exclusive of Mr. Wayne's work) now cover two hundred and thirty species, ten having been added during the year. Careful field work has extended the observations to cover the whole period when most of these species are here, and the value of the survey has been shown by the addition of two species to the avifauna of the state since the publication of Mr. Wayne's book in the middle of the year, and by a number of other records almost as unusual. Persons obtaining rare birds or other animals anywhere in South Carolina are urgently requested to report the facts to the Museum in order that they may be recorded.

PUBLICATION

The sixth volume of the BULLETIN has been completed during the year, and a new series of research publications, entitled CONTRIBUTIONS FROM THE CHARLESTON MUSEUM, has been begun with a volume on "Birds of South Carolina," by Arthur T. Wayne, honorary curator of birds. Mr. Wayne has a longer and more intimate familiarity with the avifauna of South Carolina than any other man, and his contribution to the ornithology of the South Atlantic coast region is published by the Museum with confidence that it sets a worthy standard for the series which it inaugurates.

The manuscript of a "Catalog of the Mollusca of South Carolina," by William G. Mazyck, is ready for the printers; and a paper on "Birds of the City of Charleston," by Herbert R. Sass, is in preparation for this series.

The need of a small fund for publication of important papers without drawing upon general accounts is keenly felt.

To the *News and Courier* and to *The Evening Post* the Museum is indebted for unfailing support of its work and for the freedom with which their columns have been opened to notices of Museum activities.

The director of the Museum has compiled during the year, for the American Association of Museums, a directory of American

museums of art, history, and science, which has been published by the Buffalo Society of Natural Sciences. The correspondence incidental to the preparation of this volume has brought the Charleston Museum into advantageous relations with a large number of museums in both North and South America.

PUBLIC INSTRUCTION

This department has been under the direction of Miss Bragg, and the Natural History Society has continued to serve as the chief medium of activity. The older section has worked chiefly on trees, and the younger section on a variety of natural history subjects. The membership has increased to a point where it is difficult to arrange excursions and to carry on personal instruction in the field to the same extent as in the past. Furthermore the installation of the collections will confine the staff more closely to the Museum but at the same time open much wider opportunities for educational work.

The close association of the work of this department with the library, which has arisen by force of circumstances, has proved so satisfactory that an effort to continue it will be made.

In addition to its work with the Natural History Society, this department has provided lectures and demonstrations for classes from the training school of the South Carolina Kindergarten Association, the Memminger Normal School, Ashley Hall, the Bennett School, and Miss Coralie Nathan's kindergarten. Demonstrations of the equipment and work of the Museum have been given to the Charleston Advertising Club, Stokes' Business College, and a number of groups of business men.

PAUL M. REA, *Director.*

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

BIBLIOGRAPHY OF THE SYLVA
OF SOUTH CAROLINA
LOCAL FAUNA

Volume VII, Number 2

FEBRUARY, 1911

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Librarian

LAURA M. BRAGG

Honorary Curators

WM. G. MAZÏCK.....	<i>Conchology</i>
DANIEL S. MARTIN.....	<i>Geology</i>
ARTHUR T. WAYNE.....	<i>Ornithology</i>
NATHANIEL W. STEPHENSON.....	<i>Art</i>

THE CHARLESTON MUSEUM was in existence as early as 1777 under the auspices of the Charleston Library Society, was transferred to the Literary and Philosophical Society of South Carolina in 1815, to the Medical School in 1828, and to the College of Charleston in 1850. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

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The membership fees are:—

ANNUAL MEMBERS.....	\$ 10	PATRONS.....	\$ 500
SUSTAINING MEMBERS....	25	BENEFACTORS.....	1000

The privileges of members include admission on pay days, tickets to members' lecture courses, and copies of Museum publications.

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 7 CHARLESTON, S. C., FEBRUARY, 1911 No. 2

BIBLIOGRAPHY OF THE SYLVA OF SOUTH CAROLINA¹

DE BRAHM, GLEN, HEWAT

In the period between Catesby and the publication of Walter's *Flora Caroliniana* several general works on South Carolina treat briefly of its flora and natural resources. These are of a more serious and reliable nature than the descriptive pamphlets of the later years of the seventeenth century, though scarcely more scientific. De Brahm² gives us lists of trees found growing in different situations, as "on swamp land," "on rich land," and "on sandy soil."

Gov. Glen's³ reference to the trees of the state is most meagre, consisting of a single paragraph enumerating seventeen trees, concluding with "and variety of other Sorts of Trees, the names of which are scarcely known." Considering that Dr. Alexander Garden accompanied Gov. Glen on his journey into the country of the Cherokees in 1752 and that Glen's *Description of South Carolina* was not published until 1761, this statement appears inexplicable. Dr. Garden, while he probably published nothing on trees, was yet enough of a botanist to have been of material assistance to Linnaeus, and it is hardly conceivable that he should not have

¹ Continued from the December number.

² De Brahm, William Gerard, *Philosophico-historico-hydrogeography of South Carolina, Georgia and East Florida*. Reprinted in Weston, P. C. J. *Documents connected with the history of South Carolina*. 1756.

³ [Glen, James.] *A description of South Carolina*. 1761. Reprinted in Carroll, B. R. *Historical collections of South Carolina*. 1836.

known the trees of the country. It is also difficult to believe that Glen had not heard of Catesby's work.

Alexander Hewat¹ makes no attempt to catalog the trees of the state, giving only very general references to flora, though apparently more interested in animals.

WILLIAM BARTRAM

While bibliographically Bartram's² travels follow the publication of Walter's *Flora Caroliniana*, yet in point of time they precede, being made in the years 1773-8. Bartram traveled through a small section only of South Carolina, but he was a keen observer of plants and had a scientific knowledge of botany possessed by no earlier observer of trees in this state. A long step has been taken when, in describing the shrubs along the sand dunes, a traveler tells us that he found "*Quercus pumila*" and "*Myrica cerifera*³," instead of making a general reference to oak and myrtle. With Bartram begins the modern scientific study of South Carolina trees. Catesby had done magnificent work, but he was not a trained botanist and he lived too early in the century to have adopted the Linnean nomenclature.

Humphrey Marshall, in 1785, published the first botanical work, as well as the first tree book, printed in North America, and while Marshall is in no sense of the word a South Carolina botanist, his *Arbustrum Americanum* is important as giving first descriptions of several South Carolina trees.

THOMAS WALTER

Thomas Walter is the first South Carolinian to study the trees of the state, and even he was born in England. But coming to this country when a young man and in all ways affiliating himself with South Carolina, he may properly be said to belong to it. All former important work on its trees had been done by travelers

¹[Hewat, Alexander.] An historical account of the rise and progress of the colonies of South Carolina and Georgia. 2 v. 1779.

²Bartram, William. Travels through North and South Carolina, Georgia, East and West Florida . . . Lond. 1792.

³Ibid, p. 469.

from without; Walter's was based on careful study from year to year of the flora of the region in which he lived. In 1788 he published the results of his study in the *Flora Caroliniana*, in which he describes about one thousand species, many of them not before known to science. The work is in Latin and the descriptions are technical and brief but accurate. Walter's Pine (*Pinus glabra*) is one of the many species first described in the *Flora*.

JOHN DRAYTON

John Drayton may claim to rank among the botanists of South Carolina by virtue of his translation of Walter's *Flora Caroliniana*. In his *View of South-Carolina*, 1802, Drayton gives a catalog¹ "Of the most remarkable Plants, Shrubs and Trees, indigenous to the state of South-Carolina," but his translation is his important contribution to botany. This translation has not been published but it is preserved as a manuscript in the library of the University of South Carolina, and is entitled, *The Carolinian Florist*. It bears the date of 1807. I think it is not generally known that the Charleston Library Society possesses an earlier manuscript, the title page of which reads: The | Carolinian | Florist; | as adapted (in English) | To the more ready use of the | Flora | Caroliniana, | of | Thomas Walter. | By | John Drayton. | . . . | Charleston | 1798. The verso immediately preceding the title page bears an exact copy of the title page of Walter's *Flora Caroliniana*. The book is carefully bound in leather and bears the stamp of the Charleston Library Society. There is a water-color painting of the "Calico flower, or Wild Ivy—*Kalmia latifolia*," with the legend, "See an elegant & very perfect Representation of this plant in Smith's *American Insects* page 73, Vol. 1st." The first recto after the title page bears the presentation inscription:

The Author of this manuscript cannot take upon himself to say, that it is perfectly correct; although in general, he believes the plants are properly named in English, as referring to the botanical names, against which they are placed. In the course of this enquiry, some plants and species have appeared, which were either unknown in the books to which references were made, or were then not sufficiently designated to warrant an english insertion. Hence, in these cases, it has not been attempted; but left open to some more favorable opportunity.

¹p. 60-87.

As Mr. Walter's *Flora Caroliniana* is not in the Charleston Library¹, being a book rarely to be met with; and as it contains a greater number of plants indigenous to this State than any other particular work in the library; it is hoped this manuscript may not be unacceptable. Under such impressions, it is respectfully presented by John Drayton.

A note at the bottom of this page refers "for further information respecting this manuscript" to an appendix in which, following a lengthy quotation, Drayton thus describes his work:

As yet, there are few States in the Union, whose natural history has been less traced than Carolina. To Catesby, we are indebted for some few drawings, and but imperfect descriptions of plants and flowers. Consequently, in some instances were we to refer only to that book, it is a matter of uncertainty whether some of the plants grow in this State, or in the West indies. Bartram in his travels through the Southern part of this State, has in this respect been more successful and particular; and when he mentions plants which he is careful to do, at every change of country & soil, he then fixes the place where they are to be found. The number however which he has been able to make in his short excursions, are but few, when compared with those which Walter in his *Flora Caroliniana* has been able to specify. And Walter although he has thus brought forward a greater number of indigenous plants than were ever before collected in one view of this country, is said to be deficient in many points which as a Botanist he should have attended to. Where information could have been obtained, he would have done well to have pointed out the use of each plant, and mentioned the places in which they grew. Perhaps he might have done this, had not death arrested him before the publication of his work. However in some measure this may be remedied, as a gentleman has his Botanical memorandum book with specimens of the plants, mentioning in what parts they were found. Should a reference to this book be permitted, an opportunity will be taken of inserting that part of botanical information; which will designate the places where particular plants are to be obtained, and facilitate the procuring them for any purposes of use or ornament.

At an evidently later date the following note is added:

The Gentleman above alluded to, has been so obliging as to favor me with the perusal of the Walter's Botanical memorandum book: From which, the place where particular plants are to be found, are herein inserted. This information however, has not been so extensive as was expected; however, it has so far been useful. The times of blossoming of different plants throught this book, are also taken from Walter's Memorandum book, and from other information.

The notes taken from Walter's Memorandum book, though far

¹Walter's *Flora* is now in this library and also in the library of the Charleston Museum.

from complete, nevertheless constitute the most valuable part of the manuscript. Drayton does not translate Walter's Latin descriptions of species, but gives instead English determinations, data as to locality and seasonal occurrence, and frequent reference to the works of Catesby, Bartram, and other botanists. Occasionally a species not found in the Flora is introduced.

ANDRÉ MICHAUX

In 1787, a few months before the death of Thomas Walter, André Michaux made his first journey through South Carolina and started, about ten miles from Charleston, his famous botanical garden, in which he cultivated both European and American plants. Here Michaux is said to have first planted the tallow tree, *Stillingia sebifera*, in the United States. It is quite possible, however, that Thomas Walter had already introduced this tree, since his mention of it in the introduction to the Flora, dated December 30, 1787, shows his familiarity with it; and its presence among the few surviving trees in his garden when Dr. Henry W. Ravenel visited the place in 1856¹ would lead to the natural inference that Walter had planted it there. Unless Walter had previously introduced the tree he must have obtained his plants directly or indirectly from Michaux during the few months between Michaux's arrival in Charleston and the writing of the introduction.

Neither André Michaux nor his son François André Michaux published any work relating exclusively to South Carolina but their residence near Charleston and travels throughout the state have made their writings particularly useful for this region. The elder Michaux's *Flora Boreali-Americana*, published in 1803, after his death, is not in any of the libraries of Charleston, but a copy of his *Histoire des Chenes de l'Amérique Septentrionale*, Paris, 1801, is in the Charleston Library Society. This copy is inscribed: *Presente' 'a la | Bibliotheque de la Caroline | par l'auteur | Michaux | Charleston le 10 Avril | 1802.* Now Michaux the elder had left France in October, 1800, before the publication of this work, as

¹*Proc. Ell. Soc.* I, 1856, p. 53.

botanist for an expedition of discovery sent out by the French government under Nicolas Baudin, and was in April, 1802, on the island of Madagascar, where he died the following November. He doubtless never saw his book and could not have written the presentation inscription, but we know that the younger Michaux was in Charleston in the spring of 1802. In all probability he then at his father's desire presented this copy to the Charleston Library Society. Some twenty species of oaks are treated, the majority of them being native to South Carolina. Each species is illustrated by exceptionally fine engraved plates. Among those first described by Michaux are the *Quercus laurifolia* and the *Q. Catesbaei* so abundant in the coast region.

Michaux's Journal¹ was not published until 1889. The earlier portion, recording his travels between 1785 and April, 1787, was lost in a shipwreck which he suffered off the coast of France in 1796. Fortunately all which relates to South Carolina is still preserved and from these hastily written notes and records of plants discovered from day to day we are brought into a more intimate relation to the study of our flora than we have gained from any other pioneer worker.

Michaux is said by his son to have communicated a paper to the Agricultural Society of South Carolina discussing the various European species of trees which might be advantageously cultivated in Charleston. I have not had access to this work as yet.

FRANCOIS ANDRE' MICHAUX

Francois Andre' Michaux gives an account of his visit to South Carolina in 1802 in his 'Travels'². Charleston was then stricken with yellow fever, but Michaux, becoming weary of Sullivan's Island, ventured into the city and there contracted the fever. Upon re-

¹ Portions of the Journal of Andre' Michaux, Botanist, written during his travels in the United States and Canada, 1785 to 1796. With an introduction and explanatory notes, by C. S. Sargent. *Proc. Amer. Phil. Soc.* XXVI, 1888, p. 1-145.

² Travels to the westward of the Allegany Mountains in the states of Ohio, Kentucky, and Tennessee, and return to Charleston, through the upper Carolinas . . . translated from the original French by B. Lambert. Lond 1805.

covery he spent some time at his father's former botanical garden which he thus describes:

At my arrival in Carolina, I found, in this garden, a beautiful collection of trees and plants of the country, which had survived an almost total neglect, for four years. I also found a great number of trees from the old continent, which my father had planted there, some of which gave marks of the most vigorous vegetation. I principally noticed two *Ginkgo biloba*, which had been planted only seven years, and had already attained an elevation of thirty feet; several *Sterculia plantanifolia*, which had yielded seeds for five or six years; finally, more than a hundred and fifty *mimosa illibrissin*, of which the stem of the first one brought from Europe is ten inches in diameter. I gave several of them away before my return to France; this tree being already in great request for the magnificence of its flowers. The agricultural society of Carolina are now in possession of this garden, which they propose to continue and to cultivate in it those useful vegetables of the old continent, which, from the resemblance of climate, promises a chance of success.

Unfortunately the garden has not been continued as proposed and to-day little remains to indicate its former interest.

LAURA M. BRAGG.

LOCAL FAUNA

The Hummingbird in Winter.—It begins to look as if the Ruby-throated Hummingbird, *Archilochus colubris* (Linn.), can no longer be classed as strictly a summer resident of coastal South Carolina. Apparently the bird is of at least occasional occurrence in winter, a specimen taken in December being now in the Charleston Museum, while the bird has also been reported in January, February, and early March. Another record, made by me on December 18, 1910, constitutes additional evidence.

This record was made in my garden on Legare Street. At about noon of the day mentioned I saw a hummingbird hovering about a medlar ("japanese plum") bush. It then flew to a peach tree, where it rested a moment, and then to an elm where again it perched a few seconds on a twig before flying away to a neighboring yard. I could not distinguish the sex with absolute certainty, but I think the bird was a male.

The record is the more remarkable because the winter so far had been a cold one. The 18th, it is true, was a warm day—temperature 58° at the time the bird was seen—but previous to this the weather had been unusually cold, the freezing point having been reached repeatedly during the first two weeks of December. Yet the hummingbird, far from being numbed or weak with hunger, was as lively as possible and apparently in the best of health and spirits.

It is a curious coincidence that the only two December records for the Ruby-throated Hummingbird were made on the same day of the month in different years and that both records were made in the City of Charleston. On December 18, 1909, Master Ned Hyer took a female in Charleston¹ while, as stated above, the record in my garden was made on December 18, 1910.—HERBERT R. SASS.

Ring-necked Duck in South Carolina.—On December 17, 1910, half a dozen or more specimens of the Ring-necked Duck (*Marila affinis*) were taken by Mr. John F. Maybank, on the Ashepoo River. Two of these were given to me but, unfortunately, I was able to preserve only the head and neck of one before they were plucked. This has been mounted and is now in my collection. Mr. Maybank reports that these birds were abundant in the Ashepoo River region. Although evidently known to sportsmen in some parts of the state, this species seems to be rare in the vicinity of Charleston. Only two records have been previously made for South Carolina, one specimen having been taken by Mr. Arthur T. Wayne, January 11, 1886, and the second by Mr. E. H. Burton, February 8, 1908, both on the Cooper River. The specimens taken by Mr. Maybank therefore make the third record for the state.—FRANCIS S. HANCKEL, JR.

¹BULL. CHAS. MUS. VI, 1910, 10.

The Charleston Museum

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OF
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EDITED BY
PAUL M. REA

AUDUBON-BACHMAN LOAN EXHIBIT
LOCAL FAUNA
NOTES FROM THE MUSEUM

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZÏCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
NATHANIEL W. STEPHENSON.....*Art*

Curator of Books and Public Instruction

LAURA M. BRAGG

Secretary to the Director

LAURA L. WEEKS

Assistant in the Library

BARBARA K. BRAGG

THE CHARLESTON MUSEUM was organized in March, 1773, by the Charles Town Library Society. In 1815 it was transferred to the Literary and Philosophical Society of South Carolina, and in 1828 was deposited in the Medical College of South Carolina. In 1850 the Museum was transferred to the College of Charleston, where it was known as the College of Charleston Museum. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 7 CHARLESTON, S. C., MARCH, 1911 No. 3

EXHIBITS AT THE MUSEUM

AUDUBON-BACHMAN LOAN EXHIBIT

The study of local birds which has been carried on by the Museum through the Natural History Society during the past four years has aroused a widespread interest in the subject, in addition to the important information which it has produced, and this fact, together with the publication by the Museum of Mr. Wayne's Birds of South Carolina, has directed so much attention to the pioneer ornithological work of John James Audubon and John Bachman in South Carolina that the Museum prepared a special loan exhibit of Auduboniana and Bachmaniana which was open to the public March 2-10. On the opening day a special meeting of the Natural History Society was held in the main hall of the Museum. Miss Bragg of the Museum staff presided and opened the meeting with a general description of the exhibit. Mrs. Paul M. Rea then reviewed the life and work of Bachman, emphasizing his connection with the Museum. Mr. Herbert R. Sass discussed the ornithological work in South Carolina of both Audubon and Bachman, and Rev. C. S. Vedder delighted the audience with reminiscences of his personal acquaintance with Dr. Bachman. A picture of the Audubon monument in New York was then shown by Dr. D. S. Martin, who was a member of the committee in charge of its erection. At the conclusion of the program Direc-

tor Rea introduced Mr. John Bennett, who announced his recovery of the date of the organization of the Museum—March, 1773—and then read the newspaper advertisement of this important event.

The loan exhibit brought together a notable collection of books, plates, portraits, and miscellaneous articles relating to Audubon and Bachman, a catalog of which is printed below, and the thanks of the Museum are extended to all who contributed to the gratifying success of the exhibit.

P. M. REA.

CATALOG OF EXHIBIT

Audubon

BIRDS OF AMERICA. Elephant folio. 4 vols. Lond. 1827-38. . . . *Lent by Charleston Library Society.*

Extracted plates.

Black skimmer. *Lent by Mrs. G. F. Coffin.*

Parasitic jaeger. *Lent by Mrs. G. F. Coffin.*

Wild turkey. *Lent by Mr. and Mrs. Julian Mitchell.*

Chromolithograph plates. J. Bien, N. Y., 1858-60.

American crow. *Lent by Mr. and Mrs. Edwin Parsons.*

American flamingo. *Lent by Mrs. C. C. Pinckney.*

American golden crested wren. *Lent by Mrs. C. C. Pinckney.*

American swift. *Lent by Mrs. C. C. Pinckney.*

Arctic tern. *Lent by Mrs. C. C. Pinckney.*

Belted kingfisher. 2 copies. *Lent by Mr. J. Bachman Chisolm; Mrs. C. C. Pinckney.*

Black-throated blue warbler. *Lent by Mrs. C. C. Pinckney.*

Black-winged hawk. *Lent by Mr. and Mrs. Edwin Parsons.*

Blue-gray flycatcher. *Lent by Mrs. C. C. Pinckney.*

Blue grosbeak. *Lent by Mrs. C. C. Pinckney.*

Boat-tailed grackle. *Lent by Mr. and Mrs. Edwin Parsons.*

Carbonated warbler. *Lent by Mrs. C. C. Pinckney.*

Children's warbler. *Lent by Mrs. William Gregg.*

Carolina parrot. *Presented to the Museum by Mrs. Henry S. Holmes.*

Duck hawk. 2 copies. *Lent by Mr. and Mrs. Edwin Parsons; presented to the Museum by Mrs. Henry S. Holmes.*

Dusky duck. 2 copies. *Lent by Mrs. William Gregg; Mrs. Edward Willis.*

Eider duck.....*Lent by Mrs Edward Willis.*
 Esquimaux curlew.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Ferruginous thrush.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Glossy ibis.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Grass finch or Bay winged bunting. 2 copies.....*Lent by Mrs. William Gregg;*
 Mrs. C. C. Pinckney.
 Great auk.....*Lent by Mrs. C. C. Pinckney.*
 Great crested flycatcher.....*Lent by Mrs. C. C. Pinckney.*
 Great footed hawk.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Great marbled godwit.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Henslow's bunting.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Hermit thrush.....*Lent by Mrs. C. C. Pinckney.*
 Least water-hen.....*Lent by Mrs. C. C. Pinckney.*
 Lincoln finch.....*Lent by Mr. and Mrs. Edwin Parsons.*
 MacGillivray's finch.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Marsh wren.....*Lent by Mrs. C. C. Pinckney.*
 Night hawk.....*Lent by Mrs. C. C. Pinckney.*
 Nuttall's lesser-marsh wren.....*Lent by Mrs. C. C. Pinckney.*
 Olive sided flycatcher.....*Lent by Mrs. C. C. Pinckney.*
 Pileated woodpecker.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Puffin.....*Lent by Mrs. C. C. Pinckney.*
 Purple grackle.....*Lent by Mrs. William Gregg.*
 Purple martin.....*Lent by Mrs. C. C. Pinckney.*
 Razor billed auk.....*Lent by Mrs. C. C. Pinckney.*
 Red-headed duck.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Republican or Cliff swallow.....*Lent by Mrs. C. C. Pinckney.*
 Rose-breasted grosbeak.....*Presented to the Museum by Mr. Caspar Chisolm.*
 Ruby crowned wren.....*Lent by Mrs. C. C. Pinckney.*
 Ruffed grouse.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Rusty grackle.....*Lent by Mrs. C. C. Pinckney.*
 Sandwich tern.....*Lent by Mrs. C. C. Pinckney.*
 Seaside finch.....*Lent by Mrs. C. C. Pinckney.*
 Sharp-tailed finch.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Song sparrow.....*Lent by Mrs. C. C. Pinckney.*
 Summer or Wood duck.....*Lent by Mr. and Mrs. Edwin Parsons.*
 Swallow tailed kite.....*Presented to the Museum by Mrs. Henry S. Holmes.*
 Towhee bunting. 2 copies. *Lent by Mrs. William Gregg; Mrs C. C. Pinckney.*
 Virginia partridge.....*Lent by Mrs. William Gregg.*
 White-bellied swallow.....*Lent by Mrs. C. C. Pinckney.*
 White-crowned sparrow.....*Lent by Mrs. C. C. Pinckney.*
 White fronted goose.....*Lent by Mr. and Mrs. Edwin Parsons.*
 White headed eagle.....*Lent by Mr. W. B. Chisolm.*

- White headed pigeon..... *Lent by Mr. J. Bachman Chisolm.*
 White-throated sparrow..... *Lent by Mrs. C. C. Pinckney.*
 Wild turkey. 3 copies.... *Lent by Mr. J. Bachman Chisolm; Mrs. William Gregg; Mrs. Edward Willis.*
 Winter wren, and Rock wren. 2 copies... *Lent by Mr. and Mrs. Edwin Parsons; Mrs. C. C. Pinckney.*
 Wood thrush..... *Lent by Mrs. C. C. Pinckney.*
 Wood wren..... *Lent by Mr. and Mrs. Edwin Parsons.*
 Yellow-billed cuckoo..... *Lent by Mr. and Mrs. Edwin Parsons.*
 Yellowshanks..... *Lent by Mr. and Mrs. Edwin Parsons.*
 Yellow red poll warbler..... *Lent by Mrs. C. C. Pinckney.*
 Chromolithograph plates. Reprints. No date.
 Carolina parrot. 2 copies... *Lent by Mr. Julian Mitchell, Jr.; Capt S. G. Stoney.*
 Duck hawk..... *Lent by Mr. Herbert R. Sass.*
 Ferruginous thrush..... *Lent by Mr. Julian Mitchell, Jr.*
 Mocking bird. 2 copies.... *Lent by Mr. H. A. M. Smith; Capt. S. G. Stoney.*
 Ruby throated hummingbird..... *Lent by Mr. Julian Mitchell, Jr.*
 ORNITHOLOGICAL BIOGRAPHY (text to the Elephant folio of Birds of America). 5 vols. Edin. and Lond. 1831-39... *Lent by Charleston Library Society, vols. 1-4.*
 Same. Phil. Vol. 1. 1832..... *Lent by Mrs. M. H. Ball.*
 BIRDS OF AMERICA. 1st octavo edition.
 Original signatures. N. Y. and Phil. 1840-44... *Lent by Mr. N. B. Barnwell, 14 numbers, and 104 extracted plates.*
 Bound in 7 vols. N. Y. and Phil. 1840-44... *Lent by Miss Elizabeth J. Adger; Mr. H. C. Cheves; Dr. C. W. Kollock; Mr. E. A. Williams; Mr. Caspar Chisolm, vols. 1, 3; Mr. Julian Mitchell, vols. 1, 2, 4; Mr. and Mrs. Edwin Parsons, vols 6, 7.*
 BIRDS OF AMERICA. 2nd octavo edition. 7 vols. N. Y. 1859. *Lent by Mr. Henry Buist.*
 PORTRAIT. Engraved by C. Turner from a painting by F. Cruickshank.... *Owned by the Museum.*
 MISCELLANEOUS.
 Townsend's Bunting, painted by John James Audubon and presented by him to Mrs. John Maynard Davis..... *Lent by Miss Mary E. Strobel.*
 Black-headed grosbeak, believed to be one of Audubon's original specimens. Bears label: "Black Hills, Male, June 3, 34, J. K. Townsend." See BULL. CHAS. MUS. III, 66-67..... *Owned by the Museum.*
 Townsend, J. K. Journey across the Rocky Mountains. 1834. Presented to Bachman by S. G. Morton, Phil. 1839..... *Lent by Mr. Herbert R. Sass.*
 Bats—specimens used by Audubon and Bachman in preparing their joint work on the Quadrupeds of North America..... *Owned by the Museum.*

Audubon Monument, Trinity Cemetery, New York City, Photograph. *Presented to the Museum by Dr. D. S. Martin.*

Audubon, Maria R. Audubon and his journals. 2 v. N. Y. 1899. . . . *Lent by Charleston Library Society.*

Bachman

PAMPHLETS AND BOOKS, by John Bachman, being the greater part of those listed in the biography of John Bachman by Catharine L. Bachman. . . . *Lent by Messrs. W. H. and J. A. Faber; Mr. W. G. Mazyck; Mrs Edward Willis; and owned by the Museum.*

MANUSCRIPT OF AN UNFINISHED WORK ON INSECTS, illustrated in water color by Mrs. Maria Martin Bachman. . . . *Presented to the Museum by the grandchildren of John Bachman, through Mrs. Jennie Haskell Rose.*

PORTRAITS.

Oil painting by John Woodhouse Audubon, about 1834. . . . *Lent by Mr. J. Bachman Chisolm.*

Oil painting. *Lent by Freundschaftsbund.*

Miniature. 2 copies. *Lent by Mrs. John F. Ficken; Mrs. J. H. Rose.*

Painting on porcelain. *Lent by Miss May Snowden.*

Bronze bust. *Presented to the Museum by Mrs. J. H. Rose.*

Head in bas-relief. *Lent by Miss Bessie Ravenel.*

Engraving by Thomas B. Welch, Phil. from a portrait by R. I. Curtis. . . . *Lent by Mr. Herbert Wickenberg.*

Engraving by Charles C. Wright from a painting by A. Fisher, Charleston, 1822. *Lent by Rev. C. Armand Miller.*

Photographs (6). . . . *Lent by Mrs. G. F. Coffin; Messrs. W. H. and J. A. Faber.*

MISCELLANEOUS.

Silver pitcher, presented to Dr. Bachman in 1856 as "A memento of affectionate regard from his valued friend, S. T. Bryce." *Lent by Mrs. G. F. Coffin.*

Silver cup and saucer, made to order by J. Mood, Charleston, and presented to Dr. Bachman by one of his parishioners. *Lent by Mrs. G. F. Coffin.*

Silver snuff-box, presented as "A tribute of friendship to J. Bachman from Col. W. Kunhardt. 1860." *Lent by Mrs. G. F. Coffin.*

Snuff-box, presented to Dr. Bachman by Audubon. *Lent by Miss Henrietta Kelly.*

Books from the library of Dr. Bachman. . . . *Presented to the Museum by Mrs. W. A. Bachman, through Dr. D. S. Martin.*

[Bachman, Catharine L.] John Bachman. Charleston, 1888. . . . *Lent by Mr. Herbert Wickenberg; Owned by the Museum.*

Snowy heron, and Carolina dove, paintings by Mrs. Maria Martin Bachman. *Lent by Mrs. G. F. Coffin.*

Audubon and Bachman

VIVIPAROUS QUADRUPEDS OF NORTH AMERICA. 3 vols. text and 3 vols. elephant folio plates. N. Y. 1846-54.... *Lent by Mr. Caspar Chisolm*, vol. 1 of text; *Miss Elise Lewis*, vol. 1 of text; *Presented to the Museum by Dr. C. W. Kollock*, vols. 1-2 of text.

Proof plates, partially colored.

Canada lynx..... *Lent by Mr. Julian Mitchell.*

White American wolf *Lent by Mr. Julian Mitchell.*

Carolina gray squirrel..... *Lent by Mr. Julian Mitchell.*

Woodchuck..... *Lent by Mr. Julian Mitchell.*

QUADRUPEDS OF NORTH AMERICA. N. Y. 1851-54.

Original signatures.... *Lent by Miss Eleanore Ball* (no. 31 wanting); *Mrs. Augustus Fitch* (nos. 6-8, 15 wanting); *Miss Catharine P. Ravenel*.

Same. 3 vols. 1851-54. 3 copies. *Lent by Mr. C. H. Drayton*; *Mrs. H. J. O'Neill*; *Mr. and Mrs. Edwin Parsons.*

Same. 3 vols. 1854.... *Lent by Dr. C. W. Kollock*; *Mr. Caspar Chisolm*, vol. 2. Extracted plates (5) *Lent by Mrs. C. C. Pinckney.*

LOCAL FAUNA

American Merganser.—On January 2, 1911, I secured the first authentic record for the American Merganser (*Mergus americanus* Cass) in this state. Mr. Arthur T. Wayne, in his *Birds of South Carolina*, refers this species to a hypothetical list, and declares that to the best of his knowledge it has never been taken in the state. The specimen here recorded was shot on Back River near its junction with the Cooper, after having partially swallowed a mullet ten inches in length. The weight of the mullet in its throat destroyed its balance and made continuous flight impossible. The bird rose half a dozen times, but with each attempt at escape could gain only a few yards.

Several years ago a merganser was taken on the upper Cooper River which I afterwards decided was the *Mergus americanus*, but as this specimen was not preserved I have been on the lookout during the past season for another to prove the occurrence of the species in South Carolina.

The specimen taken on Back River is a fine adult male in full plumage with the breast and under-parts a delicate peach-blossom color. The skin is now in the collection of the Charleston Museum (Spec. No. 7258).—CASPAR CHISOLM.

Spiny Lobster.—The Museum has received as the gift of Capt. Wm. Rock a fine Spiny Lobster (Spec. No. 4227), provisionally identified as *Panulirus argus* (Latreille), taken about thirty-five miles east of Charleston in sixteen fathoms of water on coral bottom. It was brought up on a hand line, the hook having caught in a joint of the second antenna, and had already been cooked for the table when secured for the Museum. This is the first record for this species off this coast as far as the writer is aware.—P. M. REA.

A New Squid for South Carolina.—A Squid found stranded on the beach at the Isle of Palms (Long Island) on March 15, by Messrs. Fred L. Lineberger and V. L. Fulmar, is referred provisionally to *Loligo gahi*, a new species for the coast of South Carolina. It measures nearly eighteen inches over the mantle, and four feet from the end of the body to the tip of the tentacular arms. This large squid is now in the Museum collection (Spec. No. 4228).—P. M. REA.

Shoveller.—On February 8, 1911, I secured from the Charleston Market an adult female Shoveller, *Spatula clypeata* (Linn). The bird was evidently killed not far from here as it was in perfectly fresh condition. The Shoveller is never abundant in South Carolina and this record is the first for the biological survey.—JULIAN MITCHELL, JR.

NOTES FROM THE MUSEUM

Miss Laura M. Bragg, who has served as librarian of the Museum since September, 1909, has been appointed Curator of Books and Public Instruction, and Miss Barbara K. Bragg has joined the staff as assistant in the library. Miss Laura L. Weeks, who has assisted Professor Rea in the work of the American Association of Museums, has been appointed Secretary to the Director.

Dr. Daniel S. Martin, honorary curator in the geological department, has spent February and March at the Museum working up the accessions of the past year and preparing mineralogical exhibits.

The Museum has secured the assistance of Mr. Ed. R. Memminger in a revision of the Henry W. Ravenel herbarium and the preparation of a catalog of the fungi of South Carolina.

Dr. Ezra Brainerd recently visited the Museum and re-examined the violets of the Elliott herbarium. Dr. Brainerd's study of these specimens on former visits has resulted in important changes in the nomenclature of the violets.

Recent gifts to the library include vols. 1-4 of Holbrook's Herpetology, from Miss Henrietta A. Kelly; miscellaneous plates and text signatures of Holbrook's Ichthyology, from Mrs. C. C. Pinckney; and vols. 1-2 of the text of Audubon and Bachman's Viviparous Quadrupeds of North America, from Dr. Charles W. Kollock. Dr. Kollock also presented to the Museum the first fascicle of Ravenel's *Fungi Caroliniani exsiccati*, a very rare and important collection of special value at this time in connection with Mr. Memminger's work referred to above.

The large attendance at the Audubon-Bachman exhibit augurs well for public interest in the completion of other exhibits. Among the visitors were Miss M. Eliza Audubon and Mrs. D. T. Tyler, granddaughters of John James Audubon and daughters of Victor Audubon.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distributions, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

Volume I of this series began in April, 1905, and is complete in 5 numbers. Subsequent volumes consist of 8 numbers each. A title page and index to the first five volumes was published in the issue of December, 1909.

Sent prepaid to any address for 25 cents a year. Single copies 5 cents each.

(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I **Birds of South Carolina**, by Arthur Trezevant Wayne.
Pp. XXI + 254. *Price: paper, \$2.75; cloth, \$3.25.*

II **Catalog of the Mollusca of South Carolina**, by William
" G. Mazýck. *In preparation.*

III **Birds of the City of Charleston**, by Herbert Ravenel
Sass. *In preparation.*



BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

ORIGIN OF THE MUSEUM
SILKWORM CULTURE
NOTES FROM THE MUSEUM

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZŮCK.....	<i>Conchology</i>
DANIEL S. MARTIN.....	<i>Geology</i>
ARTHUR T. WAYNE.....	<i>Ornithology</i>
NATHANIEL W. STEPHENSON.....	<i>Art</i>

Curator of Books and Public Instruction

LAURA M. BRAGG

Secretary to the Director

LAURA L. WEEKS

Assistant in the Library

BARBARA K. BRAGG

THE CHARLESTON MUSEUM was organized in March, 1773, by the Charles Town Library Society. In 1815 it was transferred to the Literary and Philosophical Society of South Carolina, and in 1828 was deposited in the Medical College of South Carolina. In 1850 the Museum was transferred to the College of Charleston, where it was known as the College of Charleston Museum. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....	\$ 10	PATRONS.....	\$ 500
SUSTAINING MEMBERS....	25	BENEFACTORS.....	1000

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 7 CHARLESTON, S. C., APRIL, 1911 No. 4

HISTORY OF THE MUSEUM

ORIGIN IN 1773

A series of articles on the history of the Museum, published in the BULLETIN at various times during the past five years, has put on record many long-forgotten events and has already established the claim of the Charleston Museum to the distinction of being the oldest museum in America. Mr. William G. Mazyck has shown that the Museum originated under the auspices of the Charleston Library Society at some time previous to 1777, but little hope has been entertained of ever recovering the exact date. It is, therefore, with the greatest satisfaction that the following advertisement of this event is reprinted from the *South Carolina Gazette and Country Journal* of March 30 and April 6, 1773. The same advertisement also appeared in the *South Carolina Gazette* (Powell's) of April 5 and 12, 1773. It cannot but be regarded as especially fitting that this discovery should be made by a trustee of the Library Society—Mr. John Bennett—by whom it was brought to the attention of the writer.

Important as this advertisement is in fixing the date of the organization of the oldest museum in America, it must be considered even more remarkable for the breadth of plan and high purpose with which it endowed the infant museum; and it is a happy coincidence that it is reprinted at a moment when the community is

awakening to a new appreciation of the value of a museum not only to science and education, but to industry as well. It would be difficult to formulate a better expression of the present policy of the Museum than that given by its founders one hundred and thirty-eight years ago.

P. M. REA.

The LIBRARY SOCIETY,
OF
CHARLES - TOWN,

TAKING into their Consideration, the many Advantages and great Credit that would result to this Province, from a full and accurate NATURAL HISTORY of the same, and being desirous to promote so useful a Design, have appointed a Committee of their Number to collect and prepare Materials for that Purpose.

That this may be done in the most complete and extensive Manner, *they do now invite* every Gentleman who wishes well to the Undertaking, especially those who reside in the Country, to co-operate with them in the Advancement of this Plan. - - - For this Purpose, the Society would Request such Gentlemen to procure and send to them, all the natural Productions, either Animal, Vegetable, or Mineral, that can be had in their several Bounds, with Accounts of the various Soils, Rivers, Waters, Springs, &c. and the most remarkable Appearances of the different Parts of the Country.

Of the Animal Tribe, they would wish to have every Species, whether Terrestrial or Aqustick, viz. Quadrupedes, Birds, Fishes, Reptiles, Insects, Worms, &c. with the best Accounts of their Customs and natural Habitudes.

Of Vegetables, they will thankfully receive every Kind, from the loftiest Tree in the Forest, to the smallest Plant of the Fields. - - - A complete Specimen of any Tree or Plant, will be two small Branches of each, one having the Flower in full Blossom, and the other the ripe Fruit. - - - At the same Time the Society beg to be furnished with the best Accounts that can be given of the Uses and Virtues, either in Agriculture, Commerce, or Medicine, of which such Tree or Plant is possessed - - - the Soil in which it most commonly grows - - - the Season in which it flowers, and when it bears its Fruit.

They would be glad to be furnished also with Specimens of all the various Fossils, Minerals, and Ores, the different Soils, Earths, Clays, Marles, Stones, Sands, Shells, &c. the Productions of this Province, with the best Accounts of their several Natures, Qualities, Situations and Uses.

The Society, in order that this Design may be carried into immediate Execution, have fitted up a Museum for the Reception and Preservation of Specimens of these several natural Productions, and have appointed CHARLES COTESWORTH PINCKNEY, and THOMAS HEYWARD, jun. Esquires, with ALEXANDER BARON, and PETER FAYSSOUX, Physicians, in *Charles-Town*, to receive them; to whom all Letters of Intelligence, Specimens, &c. are to be addressed.

And they flatter themselves, that the evident Utility of the Plan, will engage such a Number of public spirited Gentlemen to assist them, that they will soon be enabled to make a considerable Progress. - - - They will not only gratefully receive all such Communications, and apply them in the best Manner they can for the above Purposes, but the Names of such shall be recorded as Promotors of, and Contributors to, so useful a Work.

Any Expence that may be incurred by forwarding Letters of Intelligence, Specimens, &c. to Town, the Society will cheerfully repay.

By order of the Committee,

JOHN MURRAY, *Chairman.*

EXHIBITS AT THE MUSEUM

SILKWORM CULTURE

The Museum is fortunate in being able to exhibit this month an extensive silkworm culture. Miss Henrietta A. Kelly, formerly special agent in silk investigation for the United States Department of Agriculture, has kindly secured scientifically tested eggs from Italy, and has superintended the rearing of the worms. The exhibit has been installed in one corner of the main hall, where several thousands of the caterpillars in various stages of development may be seen feeding. Ages of breeding have produced numerous races and varieties of the mulberry silkworm, *Bombyx (Sericaria) mori*; those now being reared at the Museum are of two varieties, known as Chinese White and Chinese Yellow, their cocoons being of these colors respectively.

Rearing shelves built on Italian models receive the young caterpillars as soon as they have hatched from the egg. Here they feed upon leaves of the white mulberry, *Morus alba*, throughout the five ages which constitute their life in caterpillar form. During four brief periods only do they cease their continuous night and day feeding, these being the so-called "sleeps" which mark the four moults. Each caterpillar moults five times but the fifth moult occurs within the cocoon.

The stands prepared for the spinning of the cocoons, the mounting, as it is called, have bundles of brush sprung in rows between the shelves. When the caterpillars, about a week after the fourth moult, grow restless and refuse to eat they are taken on elm branches from the feeding shelves to those arranged for the mounting and immediately the spinning begins. First a web is spun and within this the cocoon itself is formed, a process requiring only about seventy-two hours. In order that as many as possible may witness this spinning the exhibit has been so planned that one set of worms succeeds another, thus extending the cocoon making over several weeks.

Four or five days after the cocoons are completed the cater-

pillar passes through its last moult and assumes the chrysalid form. Heretofore it has been possible to observe each stage of development in the life of our silkworms, but the chrysalis is hidden within the cocoon. The next visible sign of life is the emergence of the moth from the cocoon. In a few days it lays its eggs and dies. The cycle is then complete from the egg through the caterpillar, the chrysalis, and the adult moth back to the egg again.

In general silk culture, however, only moths sufficient for the production of the next year's supply of worms are allowed to mature. And so it is with the Museum exhibit. The greater part of the worms will be killed by smothering in hot steam while in the chrysalid stage. Otherwise the cocoons could not be unreeled, since the moths break many of the threads if allowed to work their way out. Broken cocoons can be used only where short threads are sufficient, as in certain rugs. To unree the cocoons they are first plunged in boiling water and stirred with brushes; the ends of the silk become attached to the brushes and can be thus withdrawn and connected with the reel. The present exhibit contains two skeins of silk of excellent quality drawn from cocoons reared in Charleston by Miss Kelly. One is a pure white and the other golden yellow. From 1200 to 1600 yards of silk is the usual length taken from one cocoon.

The chief interest of the exhibit naturally lies with the worms, but other features command almost equal attention. A series of large colored charts illustrates the life-history of the silkworm and its various organs; two of these teach methods of detecting disease in the worms, and still others give graphic diagrams of the relative production and consumption of silk among the nations of the world. Machines and other mechanical devices demonstrate the methods of producing the finished silk. Particularly valuable is the large collection of cocoons spun by many races and breeds of the silkworm, and exhibiting infinite diversity of form.

Numerous as are the present varieties of the mulberry silk-

worm, there seems to be little doubt that practically all trace their descent to one species whose home was the lower slopes of the Himalaya Mountains. The silk industry dates back to about 3000 B. C. in China. We are told that the Chinese Empress Se-ling-she encouraged the cultivation of the mulberry and even cared for the silkworms with her own hands as long ago as 2640 B. C. Most carefully the Chinese guarded the secret of the industry, the penalty for its disclosure being death. Legend tells us that a Chinese princess who married an Indian prince carried with her to India the precious eggs, concealed in the braids of her hair, and a most rich dowry they proved. Miss Kelly, to whom I owe many of the facts here given, further states that "not until the sixth century did Europeans even know that silk was an animal and not a vegetable product. Then the secret was disclosed to them by two monks, who, stimulated by a rich reward offered by the Emperor Justinian, brought into Constantinople some silkworm eggs hidden in their hollow distaffs. From these was started the silk industry in Europe which has laid the foundation of colossal fortunes in England, France, and Italy."

At the time of the settlement of the first southern colonies in North America, England hoped that silk culture in this country might make her independent of the Orient. In 1671 Captain Halsted¹, sailing to South Carolina, was instructed to carry to the new colony mulberry trees and silkworms from Virginia. Little seems to have been accomplished, however, in Carolina until Sir Nathaniel Johnson² introduced silk culture on his plantation, known as Silk Hope, on the Cooper River. Later Mrs. Elizabeth Pinckney was so successful with silk raising that she carried with her to England silk of a quality equal to the best and sufficient for three dresses. One of these is now preserved in Charleston. Until the end of the eighteenth century silk was produced at times even abundantly in South Carolina but since

¹Shaftesbury papers. *Coll. S. C. Hist. Soc.* V, 1897, 321.

²Ramsay, David. *History of South-Carolina.* 1809. vol. 2, pp. 220-221.

then has come to be completely neglected. The climate of the state is peculiarly adapted to the culture of silk, particularly as the white mulberry readily becomes naturalized.

The Museum culture has been made upon most flourishing trees brought from Italy by Miss Kelly, to whom the Museum is indebted for the importation of the eggs, for all the charts, specimens, and apparatus in the exhibit, and for instruction and assistance in the technique of rearing the worms. Miss Kelly's bulletin on Silk Culture will be found in the library, where a special bibliography of this subject is in preparation, and the Museum will gladly assist anyone who desires to rear silkworms for educational or commercial purposes.

L. M. BRAGG.

NOTES FROM THE MUSEUM

The Museum is open free to the public on week days from 10 to 6. Children unaccompanied by an adult will be admitted only on Saturdays.

Material in process of installation in the main hall includes collections of local shells and local bird nests and eggs; several groups of minerals; a number of the smaller mammals; and the entire Manigault osteological collection. The transfer of these collections from the old building has been greatly facilitated by members of Section B of the Natural History Society who have brought over many of the more delicate specimens by hand. Labels are being prepared for these exhibits as rapidly as possible and enough copy is now ready to keep the Museum press busy for some time.

The coöperation of the commercial bodies of the city in the installation of the scientific collections and in the addition of economic and industrial exhibits of the resources of the coast region of the state took concrete form in the raising of a fund of \$3000 by the Advertising Club. This amount was equally divided between the scientific and the industrial exhibits, and has already provided

for the removal of many of the larger mammals from the old building and for the installation of the elk and bison groups in new cases. Work has also been begun on a comprehensive exhibit of the agricultural resources of the coast region. It is hoped that this is but the beginning of the support which will make possible the complete installation of the present collections and the addition of others to enable the Museum to fulfil the plans of its founders, as announced in this issue of the BULLETIN.

The April meeting of the Natural History Society, Section A, was held at the Museum on Thursday afternoon, April 6. The program consisted of a talk by Miss Bragg on local ferns, illustrated by specimens from the Museum herbaria and by ferns gathered at the Navy Yard. Miss Bragg also gave a brief description of the silkworm exhibit and demonstrated the charts and specimens which are now to be seen in the main hall.

Teachers are specially invited to bring their classes to visit the silkworm exhibit, which will continue a week or ten days longer. By telephoning the Museum (number 2677) arrangements may be made for a special talk descriptive of the exhibit.

The Museum has recently received a framed portrait of Prof. Lewis R. Gibbes, presented by Mrs. C. C. Pinckney; and a collection of minerals, including several fine specimens of geyserite from Yellowstone Park, from Miss Henrietta Murdoch. Mr. P. P. Mazyck has also presented to the library a copy of the second volume of Bigelow's Medical Botany.

Director Rea has been elected secretary of the newly-formed City Art Commission, and has been authorized to establish at the Museum a register of local art similar to that maintained at the Museum of Fine Arts in Boston by Mr. Benj. Ives Gilman. Professor N. W. Stephenson, honorary curator of art, will have charge of the register, which is the second to be established in this country.

The Museum has participated in the organization of the Boy Scouts movement in Charleston by forming two patrols from the membership of Section B of the Natural History Society. These are known as the Ospreys and Flickers respectively and have been given space in the Museum where they have fitted up headquarters.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

HISTORY OF THE MUSEUM
SILKWORM CULTURE
AUDUBON PICTURES
NOTES FROM THE MUSEUM

Volume VII, Number 5

MAY, 1911

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZÏCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
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BULLETIN

OF

THE CHARLESTON MUSEUM

LIBRARY
NEW YORK
BOTANICAL
GARDEN.

VOL. 7

CHARLESTON, S. C., MAY, 1911

No. 5

HISTORY OF THE MUSEUM

We are indebted to Dr. Charles W. Kollock for bringing to our attention an interesting plea for a building for the Museum, which appeared on the editorial page of the *Courier*, November 23, 1824. History indeed repeats itself, for there is scarcely a point in this naive argument which has not been used more than once since that time in the effort to establish the Museum on a permanent basis. It is true that the building has finally been acquired by other means than public subscription, but there are many similarities between the situation of the Museum in 1824 and today. Its successful maintenance and development must always depend upon the interest and hearty support of the public, and not the least value of these articles on the history of the Museum lies in impressing upon the present generation the long series of earnest efforts which have brought the institution to its present position.

The article referred to is printed in full below, following as closely as possible the style of the original. It is to be regretted that the writer is unknown.

P. M. REA.

The Museum of South-Carolina, in Chalmers-Street, is this day open for public exhibition, which is to continue until the first of May next. The entire avails will be appropriated to the laudable purpose of raising a building to contain the collection, and if the citizens are unanimous in *purchasing Season Tickets*, this, with donations that may be expected from the friends of science, funds sufficient

may be obtained to commence a building before next Fall. There is no present prospect that those who are giving time and talents to the interests of this Museum, shall ever see it *in a proper building in Charleston*, except by means of public subscription. Were a house once built, the Museum would improve in its collection, and be able to support itself. Strangers from the interior of this State, from North-Carolina, Georgia, Florida and the West-India-Islands, in the winter and spring, would not fail of visiting the Institution, and carrying the information to their distant homes, would tell of what they had seen, and impel others to their example; so that the Museum of South-Carolina would obtain a name, (a very great object) and soon become as well known in the South, as Peale's Museum is, in Pennsylvania and Maryland. In these enlightened times, a public Museum is as necessary an appendage to a city, as a public newspaper or a public library, and I hope we all wish to see Charleston possessed of every Institution that other cities of the Union can boast of. In short, we could never submit to see our Museum bid adieu to Charleston, and take the road to Columbia, *where it would rot in the dungeons of a College*. With our young Ladies and Gentlemen, let patriotism prevail—let the watch-word be “Everything for Charleston and her *liberal* Institutions.”

Intelligent strangers, travelling for improvement, turn away with indifference from those places where the arts and sciences are not cultivated, and bear the disagreeable tale to distant countries. *Our town must not be one of these*. Far removed from the neighborhood of other cities, where the arts and sciences flourish, many of the youth of Charleston, from their circumstances in life, never can have an opportunity of travelling to imbibe a taste for literature and the arts, and from absolute vacancy and unimprovement of mind, turn to pursuits and amusements that begin with *idleness* and end with *poverty*. Let parents look to this. The arts and sciences are in themselves very pleasing, and though the *superficial observer* may perceive no utility to proceed from them, they sharpen the intellect; a studious disposition is formed—strong habits of perseverance and industry are acquired, that eventually lead to wealth and honor. No allowance can be made for the effects of an ardent sun in a Southern climate. *This is all mere balaam*. Look at ancient Greece, the birth place of science, and Italy, once the mistress of the world.

No Museum ever flourished without public patronage in some shape; and certainly none ever commenced with a more respectable collection than *the Museum of South-Carolina*.

EXHIBITS AT THE MUSEUM

SILK CULTURE—A RETROSPECT

The silkworm exhibit described in the last issue of the Bulletin was open to the public for just one month and during that time drew an attendance of nearly four thousand visitors. Of these over twelve hundred were children from the schools of the city, accompanied by their teachers. As a general thing these classes came by appointment and the Curator of Public Instruction spoke before each, explaining the exhibit and telling something of the story of the silkworm. Each class carried back to its school half a dozen or so of the silk caterpillars. Later many cocoons spun by them were brought to the Museum for inspection or unreeling. One school sent a beautiful little skein of silk which one of its boys had unreeled with no more efficient machinery than the back of a chair and his own hands. Through the coöperation of Mr. A. Burnet Rhett, Assistant Superintendent of Schools, special appointments were made for each of the seventh and sixth grade classes of the public schools during the last hour of the school day. The children were to write compositions upon what they learned at the exhibit. Several teachers added a competitive interest by promising to send the best of the compositions to the Museum. So great was the enthusiasm shown by the children that most classes spent an hour and a half at the exhibit although half an hour only was required. Further interest was shown by the fact that the attendance of the sixth grade classes was arranged by Mr. Rhett at the request of teachers and children. Compulsory attendance was originally planned for the seventh grade only.

One public school, the Mitchell, had each grade represented, and one of the higher schools of the city, the Porter Military Academy, came in a body. The total number of teachers visiting the exhibit with classes was forty-seven. Frequently children unaccompanied by a teacher said wistfully that they wished their

teacher would come with them. One little fellow said he was going to ask his teacher to come and a few days later appeared with her, triumphantly announcing, "Here she is". But another small lad was less successful. His teacher "didn't like worms", he volunteered dejectedly.

Great as was the attention devoted to the children during the exhibit adults were by no means neglected. Special public lectures were arranged for them and constant docent attendance supplied. The scheduled lectures during the last two weeks of the exhibit numbered twenty-eight. These lectures were delivered in the main hall where the exhibit was held, the chairs being surrounded on three sides by the exhibition cases and the rearing stands for the caterpillars. On the wall in front of the audience hung a series of large charts illustrating the life-history and anatomy of both healthy and diseased silkworms. Below stood a long case containing an exhibit of native silkworms, showing the stages in their metamorphosis. Here also was shown, by specimens, colored illustrations, and machinery, a complete history of the development of silk from the laying of the eggs by the silk moth to the raw silk in "hanks" ready for weaving. The cocoons raised during the present exhibit will afford raw material for the completion of a permanent exhibit, which will illustrate manufacturing processes and show the quality of fabric which may be made from silkworms raised in South Carolina on Italian white mulberry trees. The cocoons have already been pronounced of superior quality, weight, and size. The large rearing stands on which the caterpillars were raised became things of beauty as they gradually filled with these brilliant yellow and snowy white cocoons.

Never, we believe, has a museum exhibited a more comprehensive silk culture than the present one, which has not only shown all the stages in the life of the silkworm from the egg on through the caterpillar, chrysalis, and moth back to the egg again, illustrating as well the method of reeling silk, but has done all this according to the most modern and approved practises of scientific silk producers.

In connection with this exhibit it is interesting to learn of a silk culture which was carried on by the Charleston Library Society as long ago as 1767, in the days before the Revolutionary War, when England was offering a bounty on silk and the industry gave promise of becoming established in South Carolina. We are indebted to Mr. John Bennett for the following extract taken from the *South Carolina and American General Gazette* of May 8, 1767.

WE have the pleasure to acquaint the publick, that the successful introduction of the SILK MANUFACTURE in this province bears a promising aspect, as we hear there are great quantities of silk-worms raised in almost every family in Purrysburg parish, and some by the French of Hillsborough, and the English and Germans near Long Canes, and that several gentlemen and ladies, near Charlestown, will make the private amusement of raising silk worms, tend to the publick benefit, by shewing how easily the knowledge thereof is to be acquired, and what small labour is necessary in the management of them. Mr. John Lewis Gibert, a native of France, who is employed by the gentlemen concerned on behalf of the publick, in the encouragement of this manufacture, to wind, and teach the winding of silk, has now a considerable number of silk worms, in the old school-house, near the new barracks, where gentlemen, who are desirous of seeing them, either through curiosity, or inclination to promote so valuable a branch of trade, may, at one and the same time, view them in the various stages of life, some young, some full grown, and some spinning their balls or cocoons.

The Librarian of the Charlestown-Library-Society also raises a few in the lobby of the library-room, where gentlemen, who are not willing to go so far as Mr. Gibert's, may satisfy their curiosity.

Workmen are now employed in building an oven for curing the cocoons, erecting four machines and all other necessities for winding silk, with all expedition, in rooms adjoining Mr. Gibert's, in order that the Filature may be set to work as soon as the cocoons are fit, which may be in about three weeks.

We have here an example of the broad-mindedness and diversity of interests on the part of the Charleston Library Society which in 1773 led to the founding of that scientific collection which has developed into what is today known as the Charleston Museum.

L. M. BRAGG.

RECENT ACCESSIONS

AUDUBON PICTURES

Since the Audubon-Bachman exhibit in March the Museum has become the fortunate possessor of three beautiful pictures by John James Audubon. One is a water-color painting signed by Audubon and labeled in his own handwriting, "*Arctomys monax*, Gmel. Maryland Marmot, Ground Hog, Woodchuck." This is the original painting from which was lithographed and colored the plate of this name in the elephant folio edition of Audubon and Bachman's Quadrupeds of North America. The Museum is indebted to Mrs. Morris F. Tyler, a granddaughter of Audubon, for this valuable and beautiful gift. Audubon's paintings have long since found permanent resting places and it is only through the interest and kindness of Mrs. Tyler that the Museum has had the singular good fortune to obtain this treasure.

The other pictures are superb plates from the first edition of the elephant folio of Audubon's Birds of America, in which the plates were engraved from the original water-color paintings by copper-plate process and were colored by hand. One of these plates is the Frigate Pelican, engraved by Havell in 1835 and now presented to the Museum by Mr. Julian Mitchell. The Frigate Pelican, now known as the Frigate Bird or Man-o'-war Bird, is a peculiarly appropriate gift since the only specimen of this pelagic species known to have been taken on the South Carolina coast is now in the Museum. Only during the heaviest gales does this species approach land in these latitudes.

The second of the plates is the well-known one of the Golden Eagle, engraved by Havell in 1833 and is the gift of Mr. and Mrs. Henry S. Holmes who had previously presented to the Museum three plates from the uncompleted lithograph edition of the Birds of America.

The Golden Eagle, while occasionally taken in the upper part of South Carolina, is as rare a species as the Frigate Bird in the

coast region. Visitors to the Museum during the past month have been interested in a mounted group of a Golden Eagle and a Wild Turkey. This is one of the only two Golden Eagles taken on the coast and was shot in St. Andrew's Parish after having killed the turkey which is mounted with it.

NOTES FROM THE MUSEUM

At a meeting of the Trustees on Friday, May 12th, Mr. Edward R. Memminger was elected Honorary Curator of Fungi. Mr. Memminger has been a student of the botany of the southeast since 1882, devoting special attention to the higher fungi. During the past three months he has rearranged the Ravenel Herbarium and added to the biological survey more than a thousand records for fungi, based upon the work of the earlier botanists. This work will be continued with a view to cataloging all the fungi known to occur in this state.

Dr. Daniel S. Martin, honorary curator in the geological department, is engaged in visiting museums in Alabama, Georgia, and Florida in the interest of the Piedmont collection of minerals. A series of specimens for this collection has recently been received from Dr. Joseph Hyde Pratt, state geologist of North Carolina, and it is hoped that the present year may see the greater part of the material necessary for this collection brought together at the Museum.

Since Miss Bragg's article on Silk Culture, in this issue, was set in type we have received from Mr. John Bennett the following further note, taken from the *South-Carolina Gazette, and Country Journal* of October 12, 1773: "London News:.. July 26:.. It is said that a considerable number of French Refugees, well skilled in the management of silk-worms, and making of wines, have within these few days engaged themselves on very advantageous terms to go to New-York and South-Carolina, where the cultivation of these two lucrative branches of business is carrying on with great spirit."

An exhibit of Asbestos cloth manufacture is being installed, showing each step in the process by photographs and specimens. The material has been furnished by the General Asbestos and Rubber Company of Charleston.

A new case for the protection and convenient storage of the herbaria has recently been completed in the Museum shop, and during the summer the various herbaria will be arranged in one series and rendered easily accessible. The cost of the case has been defrayed by the Natural History Society, which is assisting the Museum in its biological survey.

At the April meeting the Natural History Society took up for the first time the study of ferns. An effort is being made to collect for the Museum herbarium all species of ferns found within the borders of South Carolina. It is hoped that members of the Society, and others interested in this study, will endeavor to collect what ferns they can during the summer. The Museum particularly desires to receive ferns from the South Carolina mountains and from the central and upper parts of the State. Beautiful specimens may be obtained if the ferns are placed between newspapers or driers as soon as gathered. Both fertile and sterile fronds should be secured and also a small portion of the root. The date, locality, and character of place where collected should always be preserved with the specimen.

Each section of the Natural History Society has held a meeting this month. Section A met on May 4, Mr. F. M. Weston, Jr., speaking on the ornithological work of Wayne, Loomis, and their contemporaries. Three Audubon pictures recently presented to the Museum were exhibited. Plans for a launch trip were discussed, but owing to the difficulty of choosing a day convenient to all it has been decided to have no further trips this spring. Section B held its meeting on May 11, Mr. Weston again speaking, this time on the breeding warblers of the coast region.

With this issue the BULLETIN takes leave of its readers until October, when we hope for further increase in installation and in educational work.

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BULLETIN
OF
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HURRICANES
NATURAL HISTORY SOCIETY
RECENT ACCESSIONS

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Director

PAUL M. REA

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DANIEL S. MARTIN.....	<i>Geology</i>
ARTHUR T. WAYNE.....	<i>Ornithology</i>
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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 7 CHARLESTON, S. C., OCTOBER, 1911 No. 6

WEST INDIAN HURRICANES

The most notable event of the summer in Charleston was the destructive hurricane of August 27-28, and we trust that a brief statement of the relation of these hurricanes to other kinds of cyclonic storms, as well as a few observations on the effects of the storm, may be of timely interest.

METEOROLOGY OF HURRICANES

In the temperate and colder regions of the earth the prevailing surface winds are westerly. In the equatorial region the trade winds blow from the northeast in the northern hemisphere and from the southeast in the southern hemisphere. Areas of low barometric pressure form as eddies in the prevailing westerly winds and move eastward in alternation with areas of high barometric pressure. The air settles to the earth in a "high" and spreads out in all directions in a spiral manner, forming what is called an anticyclone. In a converse manner the winds blow from all directions in a spiral path to the center of a "low," forming a cyclone. The falling air of an anticyclone brings clear, cool weather, while in a cyclone the warm, moist air from the surface of the earth is chilled as it rises and precipitates its moisture. Cyclones are therefore rotary storms of large area, usually a thousand or fifteen hundred miles in diameter, and moderate intensity. They are sometimes accompanied by local rotary storms

of very small area, from a few feet to a mile or two in diameter, but of great intensity. Such storms are properly called tornadoes and occur most commonly in inland regions.

Hurricanes or typhoons are cyclonic storms a few hundred miles in diameter and of great intensity originating over the ocean in the tropics and passing, in the northern hemisphere, a little north of west to about latitude 30° , where they commonly recurve to the northeast. Such storms are known as hurricanes in the West Indies and as typhoons in the East Indies. They decrease in area and increase in intensity until they recurve, when they spread out and become less violent. Hurricanes are the most destructive storms that visit the United States and while their effects are most severe on the Gulf and South Atlantic Coasts they sometimes have a maximum effect much farther north, as in the hurricane of September, 1877, which did general damage throughout northeastern United States and Canada. Ninety per cent of the West Indian hurricanes occur in August, September, and October. The most serious damage at Charleston has been in late August or early September. Some four hundred of these storms have been recorded in the past four hundred years, but the same place in the West Indies or United States is visited only about once in ten or fifteen years.

Unfortunately, some of the most dangerous hurricanes touch land for the first time on the South Atlantic Coast, as was the case this year, while a large proportion of those reported in the West Indies recurve before reaching the coast of the United States. These circumstances explain the inability of the Weather Bureau to forecast the coming of storms like that of August, 1911, until regular wireless reports are received from ships in the area north of the West Indies. Occasionally the point of recurving is carried much farther west into the Gulf of Mexico, and it was a hurricane of this type that destroyed Galveston on September 8, 1900. The motion of the hurricane center is so slow that the heavy sea which it causes passes far ahead of the storm and may give warning of its approach two or three days in advance.

Destructive hurricanes have visited Charleston on the following dates since 1850: Sept. 9, 1854; Aug. 27, 1881; Aug. 25, 1885; Aug. 27, 1893; Aug. 27, 1911. The 27th of August is evidently an evil day. The hurricane of 1911 seems to be typical, and though a general description is not within the scope of this article, some features of special interest are given below.

WIND VELOCITY

An interesting comparison is afforded by the meteorological instruments at the Museum on the western side of the city, and those at the Weather Bureau station at the Custom House on the eastern water front. When the wind is east a considerably higher velocity is recorded at the Custom House than at the Museum, while the reverse is the case with a west wind. This is due to friction with houses and trees and eddies in streets and gardens. The broad river and marshes on each side of the city always expose one of these stations to the full force of the wind. In the hurricane this year the wind was east and the velocity recorded at the Weather Bureau was about twenty-eight miles greater than that at the Museum at 11.28 p. m. when the Weather Bureau anemometer ceased to work accurately. The Museum recorded a maximum velocity of seventy-eight miles an hour at midnight and if the same difference held the velocity at the Custom House would have been one hundred and six miles an hour. This is, of course, uncertain but we are glad that the Museum instruments could help to fill the gap in the official records.

TIDE

The height of the tide, as determined by the United States Engineer's office was slightly lower than in the hurricane of 1893, except in the vicinity of the Battery at the southern extremity of the city, where it was somewhat higher than in 1893. This is attributed to the widening of the water front by the recent western extension of the Battery. This seems reasonable when it is remembered that Charleston, like New York, lies between two

rivers and presents a rather sharp point to the incoming tide. A widening of the point might well cause a backing-up of water in the low streets behind the Battery sea wall.

DAMAGE TO THE MUSEUM

It is a pleasure to report that the Museum suffered comparatively little damage from the hurricane. The large semi-circular window over the entrance and a number of east windows were blown in and admitted the wind to the main hall, where the pressure lifted three-quarters of the skylights out. One of these fell inside and broke the top and back lights of the Elk Case. It is remarkable that no other cases were injured, but the loss of even one of the large cases so recently installed is discouraging at a time when the need for rapid progress in installation is so urgent. The roof was cut in many places by broken glass from the skylights and will require extensive repairs. Minor damages included the loss of awnings and the destruction of many of the shrubs about the grounds.

EFFECT ON TREES AND GARDENS

A most conspicuous result of the hurricane was the destruction of trees throughout the city. The park commission estimates that about forty per cent of the street trees fell during the storm and that a number now standing will probably have to be removed.

The morning after the storm the streets of the city were literally blocked with fallen trees. By strenuous efforts the park department succeeded in clearing the main thoroughfares so that traffic was obstructed for a day or two only, but many of the streets were impassable for over a week and it was several weeks before the debris could be removed, even with the entire street force working nights as well as days. It is no exaggeration to say that there was scarcely a large tree in the city but lost some branch or bough and every tree sacrificed its leaves. The ever-green trees, as the live oak and cherry-laurel (mock orange), at first appeared to have escaped, but their leaves also turned brown

after a few days and began to fall. This dying of the leaves was caused by the twisting of their stems, and not by the salt water as many have supposed.

The herbaceous plants were quite generally killed wherever the salt water overflowed. The Bermuda grass, however, seemed even benefited by the unusual bath. Continual rain for a week after the storm washed off the salt and freshened the soil so that, while the shrubbery was badly mangled and broken by the wind, it suffered little from sea water except where the tides kept the overflow from draining off. About the Museum, for instance, the water stood on the ground well through the day after the storm, and where it banked up against the building all shrubs rotted and died. Grass, canna plants, and the trees alone survived. Between wind and water the city's beautiful gardens were dreary wrecks, but the wonderful recuperative power of nature was soon manifest. Trees leafed out in the tender greens of spring, fruit trees blossomed, and wistaria blooms again overhung the sidewalks.

The trees which have suffered most are the elms and Carolina poplars. As one-half of the street trees of the city are elms and one-fourth poplars, this was to be expected, but a close examination proves that not only was the actual loss greatest among these species but also the proportional loss. A possible greater sufferer was the exotic China Tree, particularly the variety known as the umbrella tree, which has heretofore been somewhat extensively planted in Charleston gardens. Its wood was too brittle to resist the wind. The elms and poplars suffered both from breakage and uprooting. It may be of interest to quote from a communication received from Mr. John Randolph, formerly Davey tree expert for South Carolina and now superintendent of the Davey Tree Company's work throughout the South. Mr. Randolph visited Charleston particularly to study the effect of the storm upon its trees. He refers to the Carolina poplar, saying, "It is only fair to the poplar to say that the uprooting of these trees in nearly every case was directly the result of roots cut to allow the

laying of sidewalks, etc., and such loss of large supporting roots was the principle reason for their common fall." This cutting of the roots also accounts for the fall of elms and hackberry trees in very many cases. Trees within private grounds were not so generally uprooted as those in the streets.

The failure of the shallow-rooted elms, poplar, and hackberry is in marked contrast with the good record of the oaks and magnolias, with their deeper root systems. These are native trees which have proved their power of endurance and are therefore especially suitable for planting. Time seems to be teaching that Charleston should become a city of live oaks. Mr. Randolph's observations upon this species and the tree situation in general are of such interest that I quote further:

After a careful examination of practically all of the trees in the city I have found that the live oaks suffered less real damage from the hurricane than any other trees. This is not so apparent just now to the casual observer because the new leaves come much more slowly on the live oak than on the elm, poplar, and softer trees, but next April will show the oaks as a rule again in full leaf with a vigorous new growth taking the place of the broken tops. I feel sure that any hardwood trees except oaks would have been uprooted in South Battery Park.

There is no reason why Charleston people should feel discouraged because so many trees now look ruined. The roots of the trees left standing will have been directly benefited by the straining they have received and new growth from the ends of broken limbs will be wonderfully rapid during the next year. I would not advise the amputation of limbs which now appear dead, nor the removal of shrubs and hedges which now look badly, as in many cases these will recover and put forth luxuriant foliage from the dormant and adventitious buds, as well as vigorous new growth, if left alone until April. On April first, however, all parts of trees still leafless should be properly removed and wounds, split places, and cavities treated. Trees treated at that time will show immediate response by vigorous new growth and formation of healing tissue, and the ravages of the storm will be practically obliterated by June and the trees in better shape to withstand a similar experience.

The last two years in Charleston have seen a constantly growing interest in the question of city shade trees. During the spring of 1910 the Natural History Society made a complete survey of the street trees, mapping out and making a report upon the con-

dition of each. The crying need of more and better trees and particularly of greater care of existing trees revealed by the survey led to the appointment of a city forester. Much good work in the setting out of new trees and doctoring of old resulted, and it is a satisfaction to know that the newly planted trees have as a whole withstood the storm, and that the loss of old trees, elms especially, would have been much greater had it not been for the recent work of the park commission.

In the hurricane of 1893 the city was so denuded of trees that the park board, on what has proved to be mistaken advice, set out thousands of Carolina poplars. These grew rapidly and accomplished one object—that of quickly supplying shade. But for many reasons too generally admitted to need recapitulation, the Carolina poplar has proved unsatisfactory as a street tree. The fact that after only eighteen years, the period from storm to storm, the city is again nearly dismantled of trees, proves conclusively that the greatest care must in the future be taken to plant trees not for immediate shade but for permanent stability. Charleston streets cannot be beautifully shaded until this principle is considered. Probably no city in the country has so difficult a problem to meet in the treatment of its streets. At least it is safe to try what has been proved. Live oaks on wide streets where there are no trolley cars, other oaks and magnolias on the narrower streets or along trolley lines, ornamental trees such as the crepe myrtle alternating with, for example, magnolias where color may be made effective, palmettos to lend a tropical effect—these are some of the possibilities for making Charleston a city of luxuriant shade.

P. M. REA.

L. M. BRAGG.

NATURAL HISTORY SOCIETY

The winter work of the Natural History Society, will begin with the meetings which will be held at the Museum at five o'clock on November 2 (Section A) and November 9 (Section B). Miss Bragg will speak to Section A on the Marine Shells of South Carolina, and arrangements will be made for the annual Thanksgiving Day field trip. Miss Bragg's talk will be the first of a series on the exhibits now being installed in the Museum. The Elk Family will be the subject of the December meeting and Bison and their Distribution will be discussed in January. Interesting bird and plant records will continue to be presented, as usual.

Section B meetings will follow in general the plans laid down for Section A. Parallel work will include a study of the hawk family of birds. At the November meeting Mr. Rhett Chamberlain will read a paper upon the Duck Hawk.

RECENT ACCESSIONS

Lack of space this month prevents more than brief mention of several important gifts to the Museum including a series of five framed Audubon prints from the 1860 reprint of his *Birds of America*, elephant folio edition, presented by Mr. Henry S. Holmes. Mr. J. F. McGrath presented the jaw-bones of a baleen whale. Two live Duck Hawks, given by Dr. J. Allen Miles, and a large Timber Rattlesnake, the gift of Dr. T. P. Whaley, are attracting daily visitors.

The Charleston Museum

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PAUL M. REA

LOCAL FAUNA
EXHIBITS AT THE MUSEUM
BEACH SHELLS AFTER THE HURRICANE
NOTES FROM THE MUSEUM

Volume VII, Number 7

NOVEMBER, 1911

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZÏCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 7 CHARLESTON, S. C., NOVEMBER, 1911 No. 7

LOCAL FAUNA

RECENT BIRD RECORDS

Audubon's Shearwater on Sullivan's Island.—On the night of August 10, 1911, while walking on the front beach of Sullivan's Island and opposite Station 26½, Maynard Robertson picked up a dead but fairly fresh specimen of Audubon's Shearwater (*Puffinus l'herminieri* Lesson). The bird was in good condition with the exception of a small hole in the throat, and showed strong evidence of having been washed ashore by the waves.

Mr. Wayne in his Birds of South Carolina says of this species: "Audubon's Shearwater is a fairly abundant species off the coast during the summer months. One specimen has been taken in Charleston Harbor. A great many of these birds must have perished during the cyclone of August 27-28, 1893. A single individual was found dead on Long Island beach a few days after the cyclone."

Prof. Ellison A. Smyth has recorded two specimens secured at the mouth of the Stono River near Bird Key on August 4, 1888, and Mr. Wayne had previously captured a single specimen on Sullivan's Island.

The bird here recorded seems to be the first taken since the cyclone of 1893, but was not, as in the case of the one taken on Long Island at that time, driven ashore by the wind, since the weather for the preceding week was fairly calm and by no means

windy. The specimen has been prepared as an unmounted skin and presented to the Charleston Museum (Spec. No. 7084).—
BURNHAM CHAMBERLAIN.

Greater Shearwater, Sooty Shearwater, and Wilson's Petrel.—On September 4, 1911, one week after the hurricane, I found on the front beach of Sullivan's Island a single specimen of the Greater Shearwater (*Puffinus gravis*). The bird was in a badly decomposed condition, nevertheless the identification was positive, the head and bill being unmistakably that of a shearwater, and the white feathers of the throat and breast distinguishing it from the only other large shearwater found along our coast, the Sooty Shearwater (*Puffinus griseus*). Evidently the bird, naturally a pelagic species, had been driven ashore by the storm. Mr. Wayne records in his Birds of South Carolina that the beach at the Isle of Palms was literally strewn with dead birds of this species after the hurricane of August 27-28, 1893.

While returning from New York to Charleston by Clyde Line on August 31, 1911, I observed unusually large numbers of the Greater Shearwater and mingled with them occasionally was the darker Sooty Shearwater. I also counted at least thirty of the Audubon's Shearwater. Small terns were frequently seen diving in the trough of the waves but I was unable to identify them. Wilson's Petrel was abundant, following the vessel and snatching at scraps thrown overboard. These are the birds usually seen on the trip.—L. M. BRAGG.

Hudsonian Curlew.—On October 14, 1911, Mr. S. L. Coleman, of Mt. Pleasant, S. C., told me that he had seen two birds of this species at the Charleston Navy Yard. Mr. A. T. Wayne has no records later than October 2.¹ As the species is well-known to Mr. Coleman, I place full confidence in his report.

Sharp-shinned Hawk.—An extremely early, but seriously questioned, record for this species was made by me on Caper's Island, S. C., July 22, 1911. Mr. A. T. Wayne says that the bird I saw

¹ Birds of South Carolina. *Contr. Chas. Mus.* I, 1910, 57.

must have been the Cooper's Hawk, as he has never noted the Sharp-shinned earlier than August 18.¹ As I was unable to secure the specimen, I have no proof that I was not mistaken; but I will say that I knew at the time the importance of the record, and was able to approach near enough to the bird to satisfy myself as to its identity.

Ricebird.—On July 14, 1911, Mr. S. G. Venning saw two of these birds on his plantation near Mt. Pleasant, S. C. Although, at the time, Mr. A. T. Wayne doubted the correctness of this record, he himself saw some Ricebirds a few days later. Mr. Wayne's earliest record for previous years is August 11.²

Macgillivray's Seaside Sparrow.—Although this exceedingly abundant sparrow undoubtedly occurs regularly in the marshes bordering the city, it has, heretofore, never been found there by the Survey. On September 10, 1911, I saw one—and perhaps more—in the marshes near Savannah Wharf.

Summer Tanager.—On October 14, 1911, I saw an adult male of this species at the Charleston Navy Yard. He was moving slowly about among the tops of the pines; and I knew at once, from his actions, that he was indeed a Tanager and not a Cardinal. In order to have more than a personal impression upon which to base a statement, I watched him for some minutes until I could see clearly, with the aid of field glasses, that he had neither crest nor black throat patch. The latest previous record for this region was made by the Survey, September 27, 1907.³

Blue-headed Vireo.—Although this species has never before been recorded earlier than October 25,⁴ I positively identified a specimen—seen at close range—on October 13 of this year at the Charleston Navy Yard.

Worm-eating Warbler.—This species, recorded as late as September 29 by Mr. A. T. Wayne,⁵ was noted almost two weeks

¹ Birds of South Carolina. *Contr. Chas. Mus.* I, 1910, 72.

² *Ibid.* 107.

³ *BULL. CHAS. MUS.*, IV, 1908, 23.

⁴ Wayne, l. c., 145.

⁵ *Ibid.* 151.

later this year. On October 10, I positively identified a specimen—from watching it at a distance of about eight feet—at the Charleston Navy Yard.

Golden-crowned Kinglet.—Although never previously recorded earlier than October 15,¹ I found several specimens of this species at the Charleston Navy Yard on October 14 of this year.

Robin.—On October 20, 1911, Mr. S. G. Venning told me that he had seen several Robins on his plantation, near Mt. Pleasant, S. C. This record equals Mr. A. T. Wayne's earliest—October 20, 1897.²—F. M. WESTON, JR.

EXHIBITS AT THE MUSEUM

SOUTH CAROLINA BIRD EGGS AND NESTS

Last winter a collection of nests and eggs of South Carolina breeding birds was installed in one of the best of the cases brought from the old museum. Freshly painted in black and buff and lined with black cotton felt, it furnishes an attractive setting for the collection, although the need for larger accommodations is now becoming imperative. Mr. Arthur T. Wayne, in his *Birds of South Carolina*, records one hundred and forty-nine species as breeding birds of the state, although the eggs of several have not yet been taken. Of these, one hundred and fourteen are known to have bred in the coast region, eighty-nine of which are represented in the Museum collection. Twelve species from the interior of the state brings the total to one hundred and one. The water birds are most fully represented, the Hooded Merganser for which there is only Dr. John Bachman's one record, the Wood Ibis, and the Little Black Rail being the only species not included. Noticeable breaks occur in the hawk, owl, woodpecker, and warbler groups. Several new species have been added to the collection during the summer and particularly good work has been

¹ Wayne, l. c., 196.

² Ibid, 202.

done by members of Section B of the Natural History Society and by Mr. Wendell M. Levi of the College of Charleston in securing complete settings and nests for species previously but poorly represented. One particularly fine nest with eggs is that of the Blue Grosbeak, secured by Mr. Levi at Sumter. Mr. Wayne has considered this bird very rare in the coast region and it was with satisfaction that we last year recorded¹ the evident greater abundance of the species in the interior. This year Mr. Levi has observed four pairs of breeding birds and Mr. E. B. Wheeler, Jr., of Marion, sends us a record for an adult male observed on April 14, four days earlier than Mr. Wayne's earliest date of arrival.

SHELL COLLECTION

A temporary installation of the marine shells of South Carolina has recently been placed in the main hall near the entrance to the library. This collection is by no means complete but it is hoped that the gaps will be rapidly filled. The shells have been arranged to correspond with Mr. William G. Mazyck's Catalog of the Mollusca of South Carolina, now in process of publication by the Museum. Brief temporary labels indicate each species which has been recorded as taken along the coast of this state whether specimens have been found in recent years or not. Many species not represented in the Museum are to be found in Mr. Mazyck's private collection. Permanent labels are being prepared and will be printed as soon as possible. These will be of a popular as well as scientific nature and will greatly add to the interest of the collection. An installation of all the shells of the state, land and fresh-water species as well as marine forms, will be made when cases can be secured. The last available case from the old museum has now been used—was, in fact, filled for this exhibit.

L. M. BRAGG.

¹ BULL. CHAS. MUS., VI, 1910, 53.

BEACH SHELLS AFTER THE HURRICANE

Popular reports have been circulated to the effect that wonderfully rare and beautiful shells were found abundant on the Isle of Palms after the August hurricane. Members of the Museum staff explored the beach on the tenth of September, two weeks after the storm. While it would be rash to state that no unusual species were thrown up on the beach during the storm, nevertheless, every indication at that date would tend to prove that the disturbance of the shell-beds had been quite local and that while a certain few common species were represented in great numbers and by exceptionally large and fine living specimens, no abundance of rare species occurred. In fact the Museum can learn of no scientifically valuable specimen being collected.

The most plentiful shells seemed to be the lovely, iridescent pen shells, particularly the Spiny Pen (*Pinna muricata*). The Cockle (*Cardium muricatum*), a charming bivalve shell whose pink and yellow coloring lends an almost tropical beauty to the beach, is ordinarily less common than the other abundant species, yet usually appears in large numbers after severe gales. Curio collectors were active gathering large specimens of the two common conchs, the Pear Conch and the Channeled Conch (*Fulgur carica* and *F. canaliculata*), the empty egg cases of which were strewn along the beach. Various common species, as the ark shells, were noticeably less in the ascendent than in calm weather. On the whole the beach presented a much more interesting appearance after the storm of October 24, 1910, than after the hurricane of this year.

L. M. BRAGG.

NOTES FROM THE MUSEUM

The Museum is open free to the public on week days from 10 till 6. Children unaccompanied by an adult are admitted only on Saturdays.

The annual Thanksgiving Day field trip of the Natural History Society will consist this year of an excursion to Morris Island to study beach shells. The party will go down by launch at 8.45 a. m. and will return to the city at 2 p. m. so as to be in time for dinner.

Section A of the Natural History Society will hold its December meeting on Thursday the 7th at 5 p. m. and Section B will meet on Thursday the 14th at the same hour. Both meetings will be devoted to discussion of the results of field trips, followed by an account of the Elk family. Ten members of Section B were graduated at the last meeting into Section A and this is the best time of the year for new members to join either section.

Recent accessions not previously acknowledged include a series of asbestos specimens and products presented by the Keasbey and Mattison Company through Wm. M. Bird & Company. These will be added to the specimens and photographs obtained last spring from the factory of the General Asbestos and Rubber Company in Charleston, and will make our asbestos exhibit nearly complete. A large floor case for industrial exhibits was completed during the summer in the Museum shop and is now on the main floor.

The two Duck Hawks received alive on October 11 from Dr. J. A. Miles attracted considerable attention from the fact that this species is the Peregrine Falcon of olden times, as well as because it is rare in this state. One of these birds died on October 25 and the other on November 11 and both were prepared as skins for the Museum collection by Mr. E. A. Hyer. These hawks had been blown during a storm onto a vessel sailing off

the coast. One of the seamen on the ship brought them into the Charleston Market where Dr. Miles purchased them and presented them to the Museum with the proviso that they should not be released to harry our birds. The Duck Hawk has a sad reputation as a disturber of the peace in the bird world. Otherwise the increasing rarity of this species in South Carolina would be a matter for deeper regret.

The Museum is gathering material for a collection of Indian remains found in South Carolina, and will be glad to receive either gifts or deposits of anything suitable for such an exhibit. Information relative to burial mounds or localities where relics have been discovered will be most welcome. Implements of all kinds and particularly fragments of pottery and human skeletons, and large stone mortars are greatly desired.

The Museum records with sorrow the death of its oldest permanent resident, *Cistudo carolina*, better known as the Common Box Turtle. *Cistudo* joined the Museum staff in November, 1909, and departed this life in October, 1911, at the age of seventy-one recorded years plus an indefinite number of years unknown. His original home was in a swamp near Cross Hill, Laurens County, South Carolina, where he was first discovered by Mr. David Whiteford in 1840. Mr. Whiteford carved his initials and the date, 1840, on *Cistudo*'s plastron and returned him to his native haunts. Nothing more was heard of *Cistudo* until 1905. A second time he was released, but when captured for the third time in May, 1909, Mr. Whiteford, then nearly ninety years old, decided that a turtle of such a venerable age should achieve a more than local reputation and consequently *Cistudo* came to live at the Museum, where hundreds of people have watched him placidly feeding on fish. More often visitors have been rewarded with sight of his shell only as *Cistudo* belongs to a family much given to withdrawing into its shell, in which case the shell literally closes up like a box—hence the name Box Turtle.

This turtle was brought to the Museum by Mr. B. A. Wharton of Cross Hill. Affidavits of its history are in the possession of Mr. A. W. Love, Secretary of the South Carolina Agricultural and Mechanical Society, Columbia, S. C.

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A MUNICIPAL CATALOG OF ART
NATURAL HISTORY SOCIETY
AUDUBON PICTURES
NOTES FROM THE MUSEUM

The Charleston Museum

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BULLETIN

OF

THE CHARLESTON MUSEUM

Vol. 7 CHARLESTON, S. C., DECEMBER, 1911 No. 8

MUNICIPAL CATALOG OF ART

At the request of the City Art Commission, recently created by act of Council, the Museum has undertaken to maintain for the Commission a municipal catalog of public and private works of art in Charleston. Professor N. W. Stephenson, honorary curator of art, will have charge of this catalog.

So much is heard of the many activities in which Charleston was a pioneer in past centuries that it is pleasant to note that this is the second municipal catalog of this sort which is known to the writer. It follows the plan of the Registry of Local Art maintained by the Museum of Fine Arts in Boston. Both of these catalogs are the result of a paper on Museums of Art and the Conservation of Monuments¹ read before the American Association of Museums in May, 1909, by Mr. Benjamin Ives Gilman, secretary of the Museum of Fine Arts, Boston. In this paper Mr. Gilman suggested that the function of museums of art and science be extended to the preservation of accurate records, photographs, etc., pertaining to works of art or natural features of scientific interest which on account of their size or for other reasons cannot be brought within the museum walls. In October of the same year the Registry was established in the Museum of Fine Arts, and Mr. Gilman reported a most successful beginning of the work in June, 1910.²

¹ *Proc. Am. Assoc. Mus.*, III, 1909, 87-92.

² *Museum Registry of Local Art. Proc. Am. Assoc. Mus.*, IV, 1910, 84-87.

The Charleston Museum has been exercising a part of the function advocated by Mr. Gilman since 1906, when it inaugurated its biological survey for the purpose of recording the composition, distribution, and abundance of the local fauna and flora. It is, therefore, both fitting and gratifying that the Museum is now able to include within its scope a survey of notable works of art in Charleston. As a matter of record it may be stated that the establishment of the Municipal Catalog of Art was authorized at a meeting of the Art Commission held February 8, 1911.

This catalog is intended to include a list of all notable works of art in the city, whether publicly or privately owned, with a statement of their location, notation of their removal, name of custodian, description and periodical reports upon condition, history, and finally lists of publications relating to them. Whenever possible, photographs and descriptive articles are to be filed in the catalog.

An invitation is extended to all persons having custody of works of art worthy of record in such a catalog to apply to the Charleston Museum for blanks upon which information may be entered.

P. M. REA.

NATURAL HISTORY SOCIETY

The Thanksgiving Day field trip of Section A to Morris Island was one of the most enthusiastic and successful excursions the Society has taken. The temperature was below freezing when the launch left the wharf but with a bright sun all were comfortable. Between Fort Sumter and Morris Island dredging was done for the first time in the biological survey and apparently for the first time since the days of Stimpson and McCrady, more than half a century ago. Systematic work was not attempted, but a number of hauls of an exploratory character brought up a fauna sufficiently varied to stir the enthusiasm of the party. Among the forms obtained were four species of sponges; a variety of hydroid

polyps and corals, including a small pink sea-anemone, the coral *Astrangia* which occurs all along the Atlantic coast, beautiful purple or yellow Gorgon corals with black horny axis and delicate white polyps, and finally the less spectacular *Alcyonium digitatum*. Echinoderms were represented by the common starfish, *Asterias forbesii*; by living specimens of *Mellita*, the "sea biscuit" so abundantly cast up on the beaches; and by a very interesting little Brittle Star not much over an eighth of an inch across the disc. The worms included the common scale worm, *Polynoe*, and calcareous or sand tubes of *Serpula*-like forms.

Landing at Cummings Point on Morris Island three parties were organized: one to dig between tide marks on the back beach, one to search the front beach for shells and other forms cast up by the waves, while the third explored the sand dunes for shore birds.

The first party found the shell-covered tubes of the worm *Diopatra cuprea* protruding abundantly above the sand between tide marks. This species is of special local interest from the fact that Charleston is the first American locality from which it was reported. The leathery tube has shells adhering only above the sand and extends down so far that a considerable excavation must be made to secure the worm at the bottom. When once obtained, however, it displays richly arborescent gills and a beautiful iridescence rivaling a fire opal over the surface of the body. Many members of the party had not known that a worm could be beautiful. Surprise and pleasure came with the discovery of the large, somewhat shrimp-like crustacean, *Gebia*, buried in considerable numbers in the wet sand.

The second party collected good specimens of common beach shells but nothing especially rare. The empty egg cases of the Channeled Conch, *Fulgur canaliculata*, and the Pear Conch, *F. carica*, were found and compared. Several more or less imperfect tubes of the worm *Pectinaria* had been thrown up by the waves and showed how exquisitely quartz sand grains of uniform size had been cemented into a conical mosaic tube.

The third party reported an unexpected dearth of shore birds and the equally surprising presence of a number of species, notably the two Kinglets, which are usually restricted to the forest but were here quite at home among the bare sand dunes. Special mention was made of a male Marsh Hawk and of a flock of several hundred water birds, apparently Black Skimmers, wheeling in majestic curves over the water off shore.

When the three parties had assembled on the boat for the trip home the material was sorted over and informally demonstrated. The days following were busy with caring for the spoils, and on Thursday, December 7, the regular meeting of Section A was devoted to an informal lecture by Professor Rea as an introduction to the study of the invertebrate animals, followed by Mr. Weston's report on the birds seen on Thanksgiving Day.

The Society voted to expend sixty dollars from the treasury for facilities for caring for its collections. Miss Sarah E. Weeks tendered her resignation as Secretary, which was accepted with a vote of appreciation of the efficiency with which she had conducted the office. Miss Harriet McGee was elected Secretary.

Section B went to James Island on the Saturday following Thanksgiving Day and devoted itself chiefly to bird study. The regular meeting on December 14, was the occasion of a report of the trip by Master Joseph J. Waring, and a talk by Miss Bragg on shells.

It was voted that a trip to Sullivan's Island for invertebrates be taken on the second Saturday in January.

In the cases devoted to the exhibition of the invertebrate material added to the Museum by the Natural History Society red labels designate specimens collected by Section A and blue labels those collected by Section B. At present red seems to predominate but another day in the field may easily change the color.

P. M. REA.

AUDUBON PICTURES

In the May number of the BULLETIN¹ attention was called to three valuable pictures from the works of John James Audubon which had been presented to the Museum. People in Charleston will not soon forget the Audubon-Bachman loan exhibit which was held at the Museum during last March nor the large amount of interest it aroused. At that time the Museum possessed four framed plates from the chromolithograph edition by J. Bien of the Birds of America. This edition, known as the folio edition of 1860, was commenced under the direction of John Audubon but publication was discontinued after his death. About half the plates of the original elephant folio were issued, however. Sixty-six of these were shown at the loan exhibit in March. It is with great pleasure that the Museum is now able to offer to its visitors four plates of this edition not previously exhibited.

This is made possible through the generosity of Mr. and Mrs. Henry S. Holmes who have, in addition to their former gifts, presented the Museum with five framed plates of this series. These plates represent the Fish Crow, Night Heron, Pigeon Hawk, Ruby-throated Hummingbird, and White Headed Pigeon, the last only having been represented in the loan collection.

A word of correction is due in connection with a statement made² concerning the picture presented to the Museum by Mrs. Morris F. Tyler. This is not an original water-color painting but a hand-colored lithograph evidently lithographed from the plates in the elephant folio of the Quadrupeds of North America. It, however, bears no imprint as do the published plates of this edition and is of quite superior workmanship. Below the plate is written in pencil in Audubon's hand-writing, "Drawn from Life by J. J. Audubon. *Arctomys monax*, Gmel. Maryland Marmot, Ground Hog, Woodchuck."

¹ BULL. CHAS. MUS., VII, 1911, 38-39.

² Ibid.

The following is a list of the Audubon plates now in the permanent collection of the Museum:

BIRDS OF AMERICA. Elephant folio edition. Lond. 1827-38.

Frigate Pelican. 1835.....*Gift of Mr. Julian Mitchell.*

Golden Eagle. 1833.....*Gift of Mr. and Mrs. Henry S. Holmes.*

BIRDS OF AMERICA. Chromolithograph edition. J. Bien, N. Y., 1858-60.

Carolina Parrot. 1860.....*Gift of Mr. and Mrs. Henry S. Holmes.*

Duck Hawk. 1860.....*Gift of Mr. and Mrs. Henry S. Holmes.*

Fish Crow. No Date.....*Gift of Mr. and Mrs. Henry S. Holmes.*

Night Heron or Qua bird. 1860.....*Gift of Mr. and Mrs. Henry S. Holmes.*

Pigeon Hawk. 1860.....*Gift of Mr. and Mrs. Henry S. Holmes.*

Rose-breasted Grosbeak. 1860.....*Gift of Mr. Caspar Chisolm.*

Ruby-throated Hummingbird. 1860....*Gift of Mr. and Mrs. Henry S. Holmes.*

Swallow-tailed Hawk. 1860.....*Gift of Mr. and Mrs. Henry S. Holmes.*

White Headed Pigeon. 1860.....*Gift of Mr. and Mrs. Henry S. Holmes.*

QUADRUPEDS OF NORTH AMERICA.

Arctomys monax, Gmel. Maryland Marmot, Ground Hog, Woodchuck. No imprint. Hand-colored lithograph labeled and signed in pencil by J. J. Audubon.....*Gift of Mrs. Morris F. Tyler.*

L. M. BRAGG.

NOTES FROM THE MUSEUM

The Museum is open free to the public on week days from 10 till 6. Children unaccompanied by an adult are admitted only on Saturdays.

Mr. Edward R. Memminger, honorary curator of fungi, has returned to Charleston for the winter and is engaged in further work on the Ravenel herbarium. In addition to its valuable fungi, this herbarium contains a large series of flowering plants collected during the summer in malarial swamps and inaccessible regions where we should have great difficulty in collecting at the present time. Furthermore, the prospect of extensive drainage operations in the coastal region in the near future suggests that a few years may bring extensive changes in ecological conditions. All of this invests the Ravenel herbarium with special interest.

Miss Henrietta A. Kelly has presented to the Museum a set of

European mosses, and a very perfect specimen of brain coral and a collection of shells which were given to her by the late Professor F. S. Holmes.

Miss Catherine Ravenel has given the Museum some additional shells from the collection of the late Dr. Edmund Ravenel, together with a copy of his catalog, published in 1874.

A small collection of very beautiful foreign shells has been presented by Francis S. Hanckel, Jr.

Among recent visitors to the Museum are Dr. F. H. H. Calhoun, professor of geology and mineralogy at Clemson and curator of the museum; Mr. A. S. Rowell, of Piedmont, S. C., who has made extensive collections of Indian implements in the upper part of the state; and Mr. and Mrs. George P. Englehart. Mr. Englehart is assistant curator in the Children's Museum in Brooklyn.

At the request of the Advertising Club the Museum will entertain the business men of the city at an evening exhibition soon after the holidays, when all the offices and workrooms as well as the exhibition halls will be open to inspection and members of the staff will demonstrate the work of each department. This plan was first adopted when the Advertising Club inspected the Museum last year, and it is a pleasure to know that it succeeded so well as to invite repetition.

Our readers will be interested to learn that since the publication in the October BULLETIN of the account of the hurricane the Museum has received a special appropriation from Council for repair of the damage to the building.

The Association of First Grade Teachers has invited Miss Bragg to give them at their monthly meetings half-hour talks on nature work to show how lessons adapted to local conditions and the current season may be prepared. As nature work is not included in the curriculum of the Charleston Schools this voluntary interest of the teachers is especially gratifying.

The *Sunday News* of November 26 contained an interesting account of the effect of the August hurricane upon the bird life of

Charleston, by Mr. Herbert R. Sass, who concludes "that in the garden more particularly and in the town as a whole a furious and protracted hurricane, the maximum force of which was at least 106 miles an hour, appears to have had a surprisingly slight effect upon bird life in general, except in the case of two species, upon which its effect was very marked. In the garden, individual birds, which were present before the storm, were found safe and unharmed after it was over; and there is no concrete and positive evidence to show that in the city generally the avian death toll was more serious than the loss, if one may term it such, of a few English Sparrows. Even in the cases of the two species referred to above—the Chimney Swift and the Purple Martin—there is no conclusive proof, in the shape of dead bodies discovered, of heavy loss of life, though, in spite of the failure to find such proof, heavy loss may have occurred, especially among the Martins; and the most that can be said with certainty is that these two species, both of whom were present in large numbers before the storm, both practically disappeared as a result of the disturbance." This entire article is filled with discriminating observations of much value and a copy is preserved in the Museum library. Much interest has been shown in two other bird studies by Mr. Sass: *Wild Life in a City Garden*¹ and *Wild Music*.² The first is a charming account of his famous garden whose avifauna he has described in more technical style in the *BULLETIN*.³ *Wild Music* must stir recollections in everyone who has ever gone to Otranto to hear the chorus of bird voices in the early morning mists and to search out the less familiar species which abound there in the migration season.

Dr. D. S. Martin, honorary curator in the geological department, is on his way south and expects to be at the Museum about January 8.

The January issue will be devoted, as usual, to the annual report of the director of the Museum.

¹ *Atlantic Monthly*, 107, 1911, 226-233.

² *Ibid*, 108, 1911, 403-408.

³ *BULL. CHAS. MUS.*, II, 1906, 57-66; III, 1907, 53; V, 1909, 57-60.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distribution, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

Volume I of this series began in April, 1905, and is complete in 5 numbers. Subsequent volumes consist of 8 numbers each. A title page and index to the first five volumes was published in the issue of December, 1909.

Sent prepaid to any address for 25 cents a year. Single copies 5 cents each.

(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I **Birds of South Carolina**, by Arthur Trezevant Wayne
Pp. XXI + 254. *Price: paper, \$2.75; cloth, \$3.25.*

II **Catalog of the Mollusca of South Carolina**, by William G. Mazýek. *In preparation.*

III **Birds of the City of Charleston**, by Herbert Ravenel Sass. *In preparation.*

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

REPORT OF THE DIRECTOR OF THE MUSEUM
FOR THE YEAR 1911

Volume VIII, Number 1

JANUARY, 1912

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZÏCK.....	<i>Conchology</i>
DANIEL S. MARTIN.....	<i>Geology</i>
ARTHUR T. WAYNE.....	<i>Ornithology</i>
NATHANIEL W. STEPHENSON.....	<i>Art</i>
EDWARD R. MEMMINGER.....	<i>Fungi</i>

Curator of Books and Public Instruction

LAURA M. BRAGG

Secretary to the Director

LAURA L. WEEKS

Assistants

BARBARA K. BRAGG, *Library* L. WM. MCGRATH, *Zoology*

THE CHARLESTON MUSEUM was organized in March, 1773, by the Charles Town Library Society. In 1815 it was transferred to the Literary and Philosophical Society of South Carolina, and in 1828 was deposited in the Medical College of South Carolina. In 1850 the Museum was transferred to the College of Charleston, where it was known as the College of Charleston Museum. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....	\$ 10	PATRONS.....	\$ 500
SUSTAINING MEMBERS....	25	BENEFACTORS.....	1000

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

LIBR
NEW YO
BOTANIC
GARDE

VOL. 8 CHARLESTON, S. C., JANUARY, 1912 No. 1

REPORT OF THE DIRECTOR OF THE MUSEUM FOR THE YEAR 1911

Marked progress in installation, made possible by the interest of the business men and commercial bodies of the city; and extended educational work, made possible by increased staff, bringing the Museum to the service of widely-varying classes of citizens, are the prominent features of the past year. It has not only been one of the most successful years in the history of the Museum, but it marks the beginning of the fruition of a long period of preparation and organization. From this time on the value of the Museum to the people should enhance rapidly.

Few, even of those who have followed the work from year to year, realize the extent of the reorganization which was undertaken for the purpose of converting a large but idle collection, deteriorated from neglect, over-crowded, under-lighted, inaccessible, and without definite policy, into a modern museum, organized on a basis sufficiently broad for the work to be done, administered in a business way, affiliated with the public schools and other institutions of learning and with the commercial bodies of the city so as to become a vital factor in education, in civic improvement, and in scientific investigation. It is the ideal of the new Museum to be an expression point of community activity—a clearing house of progress. It is believed that the organization which has now been built up will be adequate to fulfil a large part of this object when once the old collections are installed and the attention of the staff can be devoted to their use and to new activities.

It is the principal task of the new year to obtain sufficient financial support to continue the work of installation.

HISTORY OF THE MUSEUM

The investigations into the history of the Museum, which had already yielded results of extraordinary interest, reached an unexpected climax in February when Mr. John Bennett recovered the long-forgotten date of origin of the Museum—March, 1773—and the official prospectus of its founders as advertised in the daily papers of that time.¹ It is especially interesting that the plans for the oldest museum in America were drawn on as broad lines as could be desired in its one hundred and thirty-ninth year.

FINANCES

An increase of the appropriation for maintenance by City Council from \$2500 to \$4000 has made it possible to bring the routine work to a higher point of efficiency than ever before and to organize and carry on the special exhibitions and educational activities which have been prominent features of the year's work but which are only a small indication of the field which the Museum will fill when more of its collections are installed and available for use.

The General Account, which receives the contributions of members and other funds available for general purposes, continues to fall far short of what it should be and is indeed made up this year chiefly from increased contributions of a few members who helped in this way to avert the closing of the shop and the suspension of installation in the summer. The amount obtained in this way was \$550, and was supplemented by \$216 from rents. The list of the members is as follows:

Patrons:

HENRY P. WILLIAMS

Sustaining Members

HON. JOHN F. FICKEN
GEORGE S. HOLMES
HENRY S. HOLMES
T. MOULTRIE MORDECAI
Miss HENRIETTA MURDOCH

CAPT. THOMAS PINCKNEY
HON. J. ADGER SMYTH
AUGUSTINE F. SMYTHE
ROBERT P. TUCKER
GEORGE W. WILLIAMS

Annual Members

WILLIAM G. HINSON

CAPT. SAMUEL G. STONEY

¹ For reprint of this advertisement, see BULL. CHAS. MUS., VII, 1911, 26-27.

When it is remembered that this account is the sole reliance of the Museum for improvements of all kinds not provided for by special funds, the reason for the slow and halting progress in installing the collections is obvious. It is also evident that the welfare of the Museum requires a larger support from public-spirited citizens. The small number of members is not to be attributed to lack of interest but rather to the inability of the director to take sufficient time from his work in the Museum building to personally solicit contributions.

Special accounts have been more varied than heretofore and have been a large factor in the success of the year's work. Foremost among these is the sum of \$2200 appropriated by the Charleston Advertising Club, one-half for moving and installing scientific exhibits, and one-half for collecting and installing industrial exhibits. Coming at a time when the prospect of installation was particularly discouraging, this support made possible the construction of new cases of approved design for the bison and the elk groups, for the moving of the Manigault osteological collection and other specimens from the old building, and for the construction of a long case for industrial exhibits, leaving a balance sufficient to install a series of exhibits of local industries. This fund was raised by the sale of advertising buttons, in which two teams competed for the credit of selling the larger number. The campaign brought the Museum prominently before the people and attracted the interest of business men. It was a long step toward the aim of the Museum to be an expression point of community activity.

The Charleston Natural History Society, the medium through which a part of the educational work and the biological survey is conducted, has paid for a case for the general herbarium, and at its December meeting appropriated \$60 for equipment and expenses of collecting and preserving the specimens which it contributes to the Museum.

A special appropriation of \$300 was made by City Council for repair of the damage sustained by the building in the hurricane of August 27-28.

The City Art Commission defrayed the cost of office equipment and stationery for the municipal catalog of art which the Museum has undertaken to maintain for the Commission.

Three schools and colleges—the College of Charleston, the Medical College of South Carolina, and Ashley Hall—have used the laboratories and classroom of the Museum and have defrayed the

expense incident to the equipment and maintenance of their work, thus at the same time extending the scope and influence of the Museum and increasing its efficiency.

ADMINISTRATION

The increased appropriation for maintenance made possible certain changes in the staff which were quite necessary for the proper administration of the Museum. Miss Laura M. Bragg was advanced from librarian to be curator of books and public instruction, and Miss Barbara K. Bragg was added to the staff as assistant in the library. This change associates Miss Bragg officially with the educational work which she has conducted with marked success since her first connection with the Museum, and allows her to give time to the organization of special exhibits and the installation of the collections. At the same time it greatly increases the efficiency of the library and provides a much-needed additional attendant for supervision of the exhibition hall and reading room.

Miss Laura L. Weeks was regularly appointed as secretary to the director, giving half her time to this work and half to her position as assistant secretary of the American Association of Museums. A general reorganization of the administrative system of the director's office has been made which will result in much economy of time and accuracy of records. A system of cost accounting has been perfected which enables extremely close supervision of expenditures and inspires confidence in the ability of the Museum to get the maximum value from the money it expends.

Mr. Edward R. Memminger was appointed honorary curator of fungi, and spent the greater part of two months revising the fungi of the Henry W. Ravenel herbarium. Nearly nine hundred South Carolina species were entered in the biological survey records as a result of this work.

Mr. L. Wm. McGrath has been appointed assistant in zoology.

The most serious administrative problem at present concerns the cost of installation. Since funds for this purpose become available only in small sums, it is impossible to contract for a large number of cases at one time. It has, moreover, been abundantly demonstrated that cases of all types can be most successfully built in our own shop. Extreme difficulty has, however, been met in the effort to get mill work of good quality and reasonable price, while in working up and assembling material a large in-

crease in the cost of labor results from the lack of simple wood-working machinery. Clear, white sap lumber in approximate sizes can be bought to advantage in the local market. The necessary wood-working machinery to manufacture this can be installed with motor for \$600. The cost of the equipment can be saved in about fifteen months. The problem of installation will be well on its way to solution if funds to equip and maintain the shop through the new year can be assured.

The necessity of obtaining a body of members adequate to the needs of the General Account has been discussed above.

Prospects are encouraging for the continued development of industrial exhibits in co-operation with commercial organizations of the city. This constitutes a worthy and important work, for the success of a museum supported by tax moneys and public subscriptions must rest upon the extent to which it is able to affiliate itself with the interests of the people and to contribute to their pleasure and profit. It should be the aim of the Museum to participate in every movement for the exploration of the natural resources of its territory or for their utilization for the public good.

It is desirable that the coming year should see the preparation and extended use of many small traveling exhibits among the city schools. As installation of exhibits proceeds it will also be possible to resume and extend the work with school children in the Museum which was beginning so auspiciously before the old building was closed.

The director represented the Museum at the sixth annual meeting of the American Association of Museums held in Boston, May 23-25, when he was honored by re-election as secretary of the Association.

AUGUST HURRICANE

The destructive hurricane of August 27-28 caused comparatively small damage to the Museum. The greater part of the injury to the building was repaired from a special appropriation from City Council for this purpose. The broken glass in the top of the elk case was renewed from the General Account and the large sheet of plate glass forming the back of this case was replaced with compo board for the present.

It is with regret that the destruction of most of the planting in the grounds about the building must be recorded. For a number of years it has been the special ambition of Dr. Martin to have

here living examples of the more interesting plants and shrubs either native or adapted to this locality. As a result of his untiring efforts, supplemented in the summer by the assiduous care of Mr. P. P. Mazyck, most gratifying progress had been made with this plan when the high tide caused by the storm flooded the grounds and killed all the smaller and more tender plants. Before another hurricane we must hope to have our shrubs and trees well enough established to survive inundation.

COLLECTIONS AND INSTALLATION

Until the old collections can be properly cared for and adequately installed it is the policy of the Museum to make no special effort for their general increase. Opportunities for advantageous acquisition of material have in some cases been declined because the diversion of even small amounts of money and time from the rehabilitation of the old collections has seemed unwise. Systematic efforts have, however, been made to build up the geological department, the local collections, and industrial material. The several departments are reviewed below.

ANTHROPOLOGY. The North American Indian collection has been placed in table cases and will be labeled as soon as time permits. Further specimens relating to the Indians, especially of South Carolina, are very much desired.

GEOLOGY. This department was in a state of extreme confusion and deficient in material when Dr. Martin was appointed to its honorary curatorship in 1906. The chief interest of the collection lay in the series of two hundred and thirty important minerals of the Ural region, presented by the Imperial Mining Institute at St. Petersburg, and in the unique series of about two hundred specimens of phosphate of lime, gathered by Dr. Shepard from localities all over the world. The general collection of minerals has been nearly trebled by the generous donations of Dr. Martin and by material which he has secured from others. The series of invertebrate fossils has also been largely augmented, and the whole department has been classified and cataloged in detail by Dr. Martin. As a result, geology is represented by a very creditable collection in good order and ready for exhibition.

Collaborating with Dr. Martin, Mrs. Rea has begun the selection and labeling of minerals for a general exhibit. The plan differs widely from the conventional exhibit of minerals, interesting to the student, sometimes attractive from the form or color of the

specimens, but usually quite unintelligible to the general public. The new plan is an attempt to interest and instruct the average visitor by showing only specimens illustrating important characteristics of each mineral, accompanied by brief, non-technical, descriptive labels. A part of the exhibit has been provisionally installed with handwritten labels for several months in order to obtain the comments and suggestions of various classes of visitors. It will be finally installed with printed labels early in 1912.

The department acknowledges the following gifts received or worked up during the year: rocks and minerals from Dr. D. S. Martin, Mr. E. Schernikow, Mr. F. P. Graves, Miss Henrietta Murdoch, Wm. M. Bird & Co., and Messrs. C. A. Ruff and Edgar L. Brother.

In April and May Dr. Martin visited Florida, Alabama, Georgia, North Carolina, and Virginia, largely in the interest of the Piedmont collection of minerals. Dr. Pratt, state geologist of North Carolina, has contributed a series of specimens to this collection, and arrangements have been made to secure the co-operation of other state surveys in this work.

INDUSTRY. It is the policy of the Museum not only to indicate the economic importance of the objects represented in the collections, but to devote special exhibits to important industrial processes which should be familiar to well-informed persons. An example of the possibilities of this work is seen in the traveling exhibit of the iron and steel industry which was prepared in 1907. It is considered even more important that the industries of our own state should be adequately represented in the Museum, and it was with much satisfaction that the director welcomed the aid of the commercial organizations in providing for local industrial exhibits. A case twenty-eight feet long and seven feet high, affording three hundred and thirty-six square feet of exhibition space, has been built in our own shop and is ready for industrial exhibits.

Material for a complete exhibit of asbestos products and their manufacture has been furnished by the General Asbestos and Rubber Company of Charleston, supplemented by a collection given by the Keasbey & Mattison Company of Ambler, Pa., through Wm. M. Bird & Co. of Charleston. The Bailey-Lebby Company has secured the promise of further material from the John-Manville Company. This exhibit will form a very complete representation of the processes of asbestos manufacture and is now in preparation for installation.

As a result of the special silk culture exhibit, described on a later

page, material for a very complete permanent exhibit was obtained and temporarily installed. This will be put in final form early in the new year.

Plans for further industrial exhibits are maturing and the coming year may be expected to show this work well advanced.

ORNITHOLOGY. This department was one of the strongest in the old museum, and because of its wide popular interest has always received special attention from the staff and from volunteer workers in the Museum. It now approaches more closely than any other department the ideal of a complete local collection, supplemented by a general collection. The specimens, it is true, are for the most part thirty or more years old and in many instances somewhat shabby, but nearly every species occurring in the state is represented, as well as a large number from other parts of the United States and the world at large.

A special case of local birds has been maintained for several years and always attracts much attention from visitors. Copy for a full set of labels for this collection is now ready for printing, but more case room is required for proper installation. It is to be hoped that cases may also be provided soon for exhibition of the general collection of birds.

This department acknowledges the gift of specimens, representing in most cases important records for the state, as follows: Messrs. Caspar Chisolm, American Merganser; B. and R. Chamberlain, Audubon's Shearwater and other unmounted skins; F. M. Weston, Jr., Sanderling; E. A. Williams, Redhead Duck; E. A. Hyer, unmounted bird skins; F. S. Hanckel, Jr., unmounted bird skins and heads; Dr. J. A. Miles, a pair of live Duck Hawks; Miss M. Elizabeth Klinck, Savannah Sparrow.

To Messrs. E. A. Hyer, Caspar Chisolm, and B. and R. Chamberlain the Museum is indebted for preparing as skins most of the birds and mammals received in the flesh.

An exhibit of the nests and eggs of birds that breed in South Carolina has been prepared by Miss Bragg and already includes eggs of nearly three-quarters of the species known to breed in the state. Most of the remainder are rare and will necessarily be filled in slowly. The nests are not so well represented in the exhibit but will be added as opportunity offers. Acknowledgment is due Mr. Wendell M. Levi for valuable nests and eggs from the interior of the state, chiefly the vicinity of Sumter, and Mr. Caspar Chisolm for eggs from the vicinity of Charleston and of Flat Rock, N. C. Messrs. B. and R. Chamberlain and other members

of the Natural History Society have collected about Charleston. Master William Allan has deposited in the Museum a set of Cat-bird eggs, the second known to have been taken in the coast region of South Carolina.

In moving birds and other fragile specimens from the old building to the new the boys in Section B of the Natural History Society have been of great assistance.

MAMMALS. Two of the finest groups of large mammals—the Bison and Elk—have been moved from the old building and installed in new cases, built in the Museum shop, which display them to great advantage. To complete the installation prairie and leaf bases are required and these will be provided as soon as opportunity offers.

The entire Manigault osteological collection has been brought into the main hall, where it awaits the construction of cases for permanent installation. The whale skeleton is ready for installation as soon as the necessary iron work is obtained.

The Museum is indebted to Mr. T. F. Lane, of the United States National Museum, for cleaning and remounting a number of skeletons. Mr. Lane was in Charleston on sick leave and would have been willing to continue this work for his expenses. The Museum frequently loses opportunities of this sort for lack of available funds.

The Polar Bear, Rhinoceros, and Tapir have been brought over and placed temporarily in rebuilt but unfinished cases. Many of the smaller mammals have also been provisionally arranged in cases in the main hall.

Mammals have been added to the collection only incidentally. Messrs. F. M. Weston, Jr. and Caspar Chisolm gave the skins of four bats; Mr. O. M. Howe gave two live opossums, one of which was subsequently prepared as a skin, and Mr. J. F. McGrath gave the lower jaws of a baleen whale.

OTHER VERTEBRATES. The exhibit of living snakes has been continued as usual, consisting chiefly of South Carolina species. A fine Timber Rattlesnake, given by Dr. T. P. Whaley, is a new species for the survey and now supplies the place in the interest of the public held for two years by the large Diamond-backed Rattlesnakes presented by Mr. Henry P. Williams in 1908. A Garter Snake was given by Mr. E. D. Veronee, and two Copperheads and two Hog-nosed snakes were added to the collection through the kindness of the Young Men's Christian Association.

Fishes are brought to the Museum occasionally for identifica-

tion and often prove to be the most northern records for West Indian species. Thanks for specimens are due to Messrs. William P. Hyams, Jr., manager of the Charleston Fish and Oyster Company, E. A. Hyer, Francis S. Hanckel, Jr., and B. and R. Chamberlain.

INVERTEBRATES. A series of invertebrate animals was purchased several years ago for teaching purposes primarily. It is desirable that this collection be exhibited as soon as cases can be provided. Duplicate specimens for dissection were added this year, making it possible for the Museum to offer facilities for extensive morphological studies.

Noteworthy specimens of invertebrates given to the Museum include a Spiny Lobster from Capt. William Rock, and a large Squid from Messrs. Fred L. Lineburger and V. L. Fulmar.

Toward the close of the year a beginning was made in the investigation of the marine invertebrate fauna of Charleston Harbor and vicinity. This resulted in the formation of an exhibit of marine invertebrates which may be expected to show large growth as this form of collecting is continued.

An exhibit of the marine shells of South Carolina has been installed by Miss Bragg. Space is provided for each species known to occur in the state, and although the vacant spaces are numerous at present it will be interesting to fill them in. Sections A and B are engaged in a friendly contest for the credit of contributing most to the exhibit. In addition to material collected by the staff or the Natural History Society the exhibit contains specimens given by Mr. William G. Mazyck from his large private collection. Miss Henrietta A. Kelly, and Messrs. Francis S. Hanckel, Jr. and H. L. Izlar have given local and foreign shells.

HERBARIA. A new case for the general herbarium was built in the Museum shop in the spring, and the Henry W. Ravenel herbarium and other collections are in process of revision and remounting. Mr. Memminger worked over the fungi early in the year and is now engaged with the flowering plants. The herbarium already contains 1397 sheets, of which 839 are from South Carolina. In addition, 840 sheets, including 711 from South Carolina, are nearly ready for filing.

The Museum is indebted for assistance in mounting specimens to the Misses Isabel O'Neill, Ida Colson, Marion McDonald, Anita Pollitzer, and Priscilla Branford.

The first fascicle of Ravenel's rare Fungi Caroliniani exsiccati was given by Dr. C. W. Kollock and has proved of much value

in Mr. Memminger's work.

A set of European plants, chiefly mosses, has been given by Miss Henrietta A. Kelly.

LIBRARY

An adequate library is as essential to successful museum work as to all other scientific endeavor. It is often necessary to refer to many technical books and journals in order to identify specimens and prepare accurate descriptive labels, and it is also highly desirable that library facilities of less technical nature be accessible to the visitor who becomes interested in learning more than the labels tell of the exhibits. The public reading room was the first department of the Museum to be opened in the new building and its attractiveness is a constant satisfaction to the staff. The library itself seems to have been created almost out of nothing, for nearly four thousand volumes have been acquired with very small appropriations for purchase. So fast have the books come in that the great problem has been to care for them adequately and make them accessible when needed. There has been hardly a member of the staff but has taken a turn in caring for the library. In this way a classed catalog was made of the books accessible up to the end of 1908. When a permanent librarian was employed in 1909 it was decided that a dictionary catalog would best serve the requirements of the library. In making this change the old cards of the classed catalog have been redistributed as author cards. Since that time the number of books on the shelves has practically doubled, and many difficult technical problems of classification have been worked out. The library, although not large in number of volumes, is comparable to the science section of a large library and presents many difficulties not encountered in general libraries of moderate size.

The appointment of an assistant in the library makes it possible for the routine work to be done under the supervision of Miss Bragg, while leaving much of her time free for installation of exhibits and educational work. Like other departments of the Museum, the library shows now the results of the long and difficult process of reorganization. The demands upon the library by the staff have increased with the prosecution of the biological survey and its use by students is much larger.

Library exchanges have grown since the publication of the CONTRIBUTIONS was begun. Exchanges with the following institutions have been inaugurated during the year: Academy of Natural

Sciences of Philadelphia, Australian Museum, Deseret Museum, Elisha Mitchell Scientific Society, Houston Museum, Illinois State Museum, Louisiana State Museum, Missouri Botanical Gardens, Minnesota Academy of Sciences, Oklahoma State University, Nautilus, New York Zoological Society, Portland Art Association (Oregon), Portland Society of Natural History (Maine), St. Paul Institute, Virginia State Library.

The library has received available back material and will receive future publications as gifts from the following: Agricultural Experiment Stations of Alabama, Cornell University, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Tennessee; College of Charleston Magazine; Geological Surveys of Georgia, Tennessee, Virginia; John Herron Art Institute; and Oakland Public Museum.

The Maine Agricultural Experiment Station, the Museum of Comparative Zoology, the New York State Museum, *Nautilus*, and the *Oologist* have generously filled gaps in our file of their publications as far as their stock is available.

The library subscribes to the following periodicals: *Bird-Lore*, *Field and Stream*, *Oologist*, *Outing*, and *Recreation*. The *Auk* and the *National Geographic Magazine* are received as gifts of Dr. Fitzhugh Salley and Miss Henrietta Murdoch, respectively. *Science* and *Popular Science Monthly* are placed in the reading room by the director and Dr. Martin, respectively.

Books have been received as gifts, in addition to those already mentioned, from the following: After School Club, American Book Company, Caspar Chisolm, Charleston Park Commissioners, W. C. Coker, Dr. George W. Field, Roland M. Harper, Miss Henrietta A. Kelly, Dr. C. W. Kollock, Dr. George F. Kunz, W. M. Levi, P. P. Mazyck, Mrs. C. C. Pinckney, Miss C. P. Ravenel, and James Henry Rice, Jr.

It is a matter for congratulation that all the United States documents related to the work of the Museum are well shelved and readily accessible. They contain thousands of technical and popular papers indispensable for scientific work and now easily found by reference to the document catalog. This is the only library in the city where this satisfactory arrangement is possible at the present time.

Important as the library is in the work of the Museum, but \$31.47 has been spent for its maintenance, exclusive of services, and \$31.60 for books and improvements during the year. It is unfortunate that no regular appropriation can be allotted to the

library for purchase of books and it is desirable that a way be found to provide for this need. A fund whose income should be devoted exclusively to purchase of books would insure uniformity of growth.

As a result of the Audubon-Bachman loan exhibit in March the Museum has received the gift of two framed plates from the elephant folio edition of Audubon's *Birds of America* from Mr. Julian Mitchell and Mr. and Mrs. Henry S. Holmes, respectively. Mr. and Mrs. Holmes have also given five framed plates of the chromolithograph series of 1860, in addition to three given previously. Another of this series was given by Mr. Caspar Chisolm. Mrs. Morris F. Tyler gave a hand-colored plate from the *Quadrupeds of North America*, labeled and signed in pencil by J. J. Audubon. These gifts, together with the books previously acknowledged, are a gratifying testimonial of the interest aroused by the exhibit.

BIOLOGICAL SURVEY

It is the object of this survey to accumulate a catalog of the fauna and flora of South Carolina, beginning with the coast region. The undertaking seems especially large when it is realized that it must be carried out for the most part as an incident in other work. The results already attained, however, abundantly illustrate its value. Without some such means of gathering into permanent form the scattered observations of many persons an adequate knowledge of our fauna and flora is impossible, while the acquisition of this information is essential to the proper development of the local exhibits which should be the distinctive feature of the Museum.

It is the plan of the survey to accumulate as many records as possible in each group until a preliminary report can be published. Thereafter only such observations are recorded as extend the published account. All records coming to the attention of the Museum in a trustworthy manner are entered in the survey, so that as fast as it is brought up to date it constitutes a complete summary of the known fauna and flora.

The survey began with the birds and since the publication of Wayne's *Birds of South Carolina*¹ contains the additional information obtained by Mr. Wayne and other observers. In most other groups only a small beginning has been made, although an analysis of the Ravenel herbarium has given eight hundred and

¹ CONTR. CHAS. MUS., I, 1910.

sixty species of fungi for the state. The beginning of marine collecting late in the year aroused much interest in the invertebrate animals and rich results may be confidently expected from a continuance of this work. Acknowledgment is due Collector of the Port E. W. Durant, Jr., for his courtesy in allowing the use of the Custom House launch for harbor collecting.

A large part of the survey records have come, as in the past, from members of the Natural History Society.

MUNICIPAL CATALOG OF ART

The idea inherent in the biological survey is extended to the field of art in the municipal catalog of art which the Museum has undertaken to maintain for the City Art Commission. It is the purpose of the catalog to make a record of works of art in the city, whether publicly or privately owned, and make periodical inspection of their condition. The catalog is modeled after that maintained by the Museum of Fine Arts in Boston.

The necessary stationery and filing cabinet were obtained late in the year and a beginning of the catalog made.

PUBLICATION

The seventh volume of the BULLETIN has been completed during the year, comprising sixty-four pages. As in the past, this publication has served as a record of progress, as a means of keeping in touch with the people of Charleston and with museums abroad, and as a medium of preliminary publication of the records of the biological survey. The reprinting, in the April number, of the original prospectus of the Museum as published in the daily papers at the time is worthy of special note. The February number contained a continuation of Miss Bragg's annotated bibliography of the sylva of South Carolina. A number of bird records of unusual interest appeared in the November number.

It is important that Mr. Mazyck's catalog of the mollusca of South Carolina, already held over a year for lack of funds, be published as the second of the CONTRIBUTIONS from the Museum.

Special acknowledgment is due the *News and Courier* and *The Evening Post* for the hearty support given to the work of the Museum and for the freedom with which their columns have been opened to notices of Museum activities.

PUBLIC INSTRUCTION

This department has continued to carry on a large part of its educational work through the medium of the Natural History

Society, under the leadership of Miss Bragg. The society has grown to a membership of nearly a hundred, and has proved an important adjunct of the Museum in many ways. It has always contributed largely to the biological survey and during the past year paid for the new herbarium case and appropriated sixty dollars from its treasury to defray the expense of caring for the material it has collected for the Museum.

Eleven members of Section B were graduated into Section A at the November meeting. The Museum has reason to be proud of the good record which these younger members of the society have established, not merely in obtaining records of rare species, but in developing scientific habits which should be of value through life.

At the various meetings of the society Miss Bragg has talked on "Christmas week in the country," "Sea-gulls of Charleston Harbor," "Local ferns," "Silk worm culture," and "Marine shells of South Carolina." The director gave a series of demonstrations of the structure of vertebrate animals before Section B, and spoke to Section A of "Catesby as an ornithologist," and on "Invertebrates collected on the Thanksgiving Day field trip." Mr. F. M. Weston, Jr. talked on "Ornithological work of Wayne, Loomis, and their contemporaries," "Breeding warblers of the coast region," and "Birds seen on the Thanksgiving Day field trip."

The interest aroused by the lectures on early ornithologists in South Carolina suggested the Audubon-Bachman loan exhibit, which was opened with a special meeting, the program of which is given below.

SPECIAL EXHIBITS

AUDUBON-BACHMAN LOAN EXHIBIT. This was the first special exhibit given in the new building and discovered an unexpected wealth of material in Charleston relating to Audubon and Bachman, which was generously lent by the owners. A full catalog of the exhibit was printed in the BULLETIN for March. The regular March meeting of the Natural History Society marked the opening of the exhibit, which continued for eight days and was attended by over twelve hundred persons. The following was the program of the meeting:

Description of the exhibit, by Miss Laura M. Bragg.

Life and work of Bachman, by Mrs. Paul M. Rea.

Ornithological work of Audubon and Bachman, by Mr. Herbert R. Sass.

Personal reminiscences of Bachman, by Rev. C. S. Vedder.
Erection of the Audubon monument in New York, by
Dr. D. S. Martin.

At the close of the meeting Mr. John Bennett announced his recovery of the date of the origin of the Museum—March, 1773.

SILK CULTURE EXHIBIT. Through the kindness of Miss Henrietta A. Kelly the Museum was able to make a special exhibit of silk culture on an unusually large scale for five weeks in April and May. Miss Kelly imported the eggs from Italy, furnished the equipment, and reared the worms through the early moults. Miss Bragg planned and conducted the exhibit and delivered twenty-eight stated lectures. The care of the culture and handling the large number of visitors was a severe strain upon the small staff of the museum and the exhibit succeeded only through their devotion.

In the five weeks of the exhibit the attendance was nearly four thousand, including over twelve hundred school children who came with their teachers, by appointment, in school hours. During most of this time all stages from the caterpillar to the finished cocoon were included in the exhibit.

PUBLIC SCHOOL WORK. With the increase of the installation the Museum will be able gradually to resume and extend the work with visiting classes from the public schools which was already inaugurated in the old building. Eighty-five classes came with their teachers during the year, twenty-three during the Audubon-Bachman exhibit and forty-seven during the silk culture exhibit.

In order to render the best service to the schools, however, it is necessary that the Museum have traveling exhibits which can be sent to the schoolroom and used to supplement the regular studies. The curator of public instruction is now co-operating with the superintendent of schools with a view to planning such exhibits. This work affords a field for efficient service which the Museum hopes to fill.

The curator has been invited by the First Grade Teachers Association to give a course of lectures at their meetings which will lay out a series of nature study lessons suitable for the first grade in Charleston from month to month. This is a purely voluntary movement on the part of the teachers and the course given will not form a part of the curriculum, but can be used in unoccupied time. It is, however, a first step toward elementary science in the schools..

AFFILIATED INSTITUTIONS

The aim of the Museum to become the center of scientific activity in the community and to utilize its resources in the broadest way has been promoted by an affiliation with the Medical College of South Carolina, by which the department of physiology and embryology is transferred to the Museum.

Another step in the same direction consists of an arrangement with Ashley Hall by which the science classes come to the Museum for instruction by Miss Bragg.

The relation of the department of biology and geology of the College of Charleston to the Museum remains unchanged. The additional affiliations enable the laboratories to do more work and to increase their equipment.

From January to June the curator of public instruction gave a weekly lecture on elementary science to students of the South Carolina Kindergarten Training School.

CONCLUSION

In conclusion, it may be worthy of emphasis that the success of the past year is but an earnest of the work that may be accomplished in another year with similar financial support. Much that has been done this year will bring visible results early in the new year, and each step in installation opens new possibilities of educational work.

PAUL M. REA, *Director*.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distribution, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

Volume I of this series began in April, 1905, and is complete in 5 numbers. Subsequent volumes consist of 8 numbers each. A title page and index to the first five volumes was published in the issue of December, 1909.

Sent prepaid to any address for 25 cents a year. Single copies 5 cents each.

(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I **Birds of South Carolina**, by Arthur Trezevant Wayne.
Pp. XXI + 254. *Price: paper, \$2.75; cloth, \$3.25.*

II **Catalog of the Mollusca of South Carolina**, by William G. Mazýck. *In preparation.*

III **Birds of the City of Charleston**, by Herbert Ravenel Sass. *In preparation.*

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

BIRDS OF SOUTH CAROLINA—SUPPLEMENT
RECENT BIRD NOTES

Volume VIII, Number 2

FEBRUARY, 1912

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZŮCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
NATHANIEL W. STEPHENSON.....*Art*
EDWARD R. MEMMINGER.....*Fungi*

Curator of Books and Public Instruction

LAURA M. BRAGG

Secretary to the Director

LAURA L. WEEKS

Assistants

BARBARA K. BRAGG, *Library* L. WM. MCGRATH, *Zoology*

THE CHARLESTON MUSEUM was organized in March, 1773, by the Charles Town Library Society. In 1815 it was transferred to the Literary and Philosophical Society of South Carolina, and in 1828 was deposited in the Medical College of South Carolina. In 1850 the Museum was transferred to the College of Charleston, where it was known as the College of Charleston Museum. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....\$ 10	PATRONS.....\$ 500
SUSTAINING MEMBERS.... 25	BENEFACTORS..... 1000

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

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GARDEN

VOL. 8 CHARLESTON, S. C., FEBRUARY, 1912 No. 2

LOCAL FAUNA

BIRDS OF SOUTH CAROLINA

SUPPLEMENT¹

Increased activity has characterized the study of the bird life of South Carolina since the Museum published in 1910 Mr. Arthur T. Wayne's *Birds of South Carolina*. This important work summarized the results of Mr. Wayne's bird observations in the state up to the date of publication and gave the most interesting records gathered by other workers on the Museum's bird survey of South Carolina. During the two years which have elapsed since the issue of this book, Mr. Wayne has secured many important records besides finding a mislaid notebook containing valuable data. Meanwhile the Museum has extended the survey to cover not only the restricted region along the coast to which it was formerly limited, but the middle and upper parts of the state as well.

The supplement here presented includes all records, as far as known, up to Dec. 31, 1911, which add to the knowledge of the avifauna of the state as given in the *Birds of South Carolina*.

These records are in character as follows:

1. New species for South Carolina. Wilson's Phalarope, taken by Mr. Burnham Chamberlain, proves to be not merely new to the

¹ Important bird records obtained by the Charleston Museum in its biological survey are printed in the *BULLETIN* from time to time. Summaries in the form of supplements to Wayne's *Birds of South Carolina* (CONTR. CHAS. MUS., I, 1910), of which this is the first, will be published as occasion arises.

state but a wide extension of the previously known range of the species.

2. Species formerly in the hypothetical list, now authentically recorded. In this class are the American Merganser, established by the taking of an adult male by Mr. Caspar Chisolm; the White-winged Scoter observed by Mr. Wayne, the known accuracy of whose work establishes the species without further verification; and the Nashville Warbler only tentatively recorded by the Rev. John Kershaw, Jr.

3. New species for the coast region.

4. Extension of dates of arrival and departure of species.

5. Specific dates where merely a general statement has previously been made.

6. Additional records for rare species, or species whose abundance is as yet undetermined.

7. Records from the interior of the state.

8. Substantiating records.

9. Records given purely as matter of interest.

The large number of observers now working on the Museum survey and the wider range of country covered has made it possible frequently to extend Mr. Wayne's observations, or verify his suppositions. Particular care has been taken to include no record based solely on observation unless the observer's accuracy and familiarity with the species has been proved to the satisfaction of the Museum. The record cards filed in the Museum survey usually give fuller data than can be included in this brief summary.

The names of observers indicated in the text are as follows: Herbert R. Sass and Francis M. Weston, Jr., both careful bird students and formerly members of the Museum staff; Burnham Chamberlain, Rhett Chamberlain, Caspar Chisolm, F. S. Hanckel, Jr., E. A. Hyer, Samuel Lapham, Jr., Miss A. L. Sloan, J. I. Waring, Jr., E. A. Williams, and Rev. Robert Wilson are workers connected with the Charleston Natural History Society; James Foster and D. S. Lesesne though not bird students have contributed two valuable records; Wendell M. Levi has for years made

a study of the breeding habits of birds in the vicinity of Sumter; the Rev. John Kershaw, Jr., has made a special study of the warblers in the interior and upper part of the state; and E. B. Wheeler, Jr., is an observer of bird life about Marion. In one instance citation has been made from the published writings of B. S. Bowdish and P. B. Philipp.

Abbreviations are used to indicate the local status of a species: p.r., permanent resident; s.r., summer resident, breeding unless otherwise indicated; w.v., winter visitant; t.v., transient visitant.

When the locality for a record is not stated it is understood to have been made in the general vicinity of Charleston or, if by Mr. Wayne, in the region about Mt. Pleasant and the coast islands where he usually works.

Colymbus auritus Linn. HORNE GREBE.—w.v. Earliest record: Oct. 25, 1909 (R. Chamberlain).

Gavia stellata (Pont.). RED-THROATED LOON.—w.v. Evidently less rare than formerly supposed. Two observed at Isle of Palms, Jan. 8, 1911 (Weston & Sass); one taken on Ashley River, Jan. 29, 1911 (Foster). Further observed Dec. 17 and 24, 1911, Savannah Wharf (Weston). In the light of these unquestionable records and of the previously published record for a specimen taken Nov. 21, 1908 (Lapham), observations made from Feb. 10 to Apr. 23, 1906 (Sass, Weston, Wilson), should now be given full value.

Stercorarius longicaudus Vieill. LONG-TAILED JAEGER.—w.v., rare. Feb. 3, 1908, Dewees Island (Wayne). Only one previous record (Wayne).

Larus argentatus Pont. HERRING GULL.—w.v. Latest record: May 2, 1911 (Weston).

Larus delawarensis Ord. RING-BILLED GULL.—w.v. Latest record: June 4, 1911 (Weston & Sass).

Larus atricilla Linn. LAUGHING GULL.—w.v. Latest record: June 4, 1911 (Weston & Sass).

Sterna antillarum (Less.). LEAST TERN.—s.r. Less rare than formerly supposed. Earliest record: May 9, 1908 (Weston).

Latest record: Sept. 5, 1910 (Weston). Bred on Capers Island in 1911, young examined July 18-25 (Weston), were able to fly by the 25th. Found breeding on Morris Island about July 4 in 1902 and 1903 (Weston). Eggs,¹ now in the Museum, taken on Capers Island in June, 1908 (Sloan). Breeding colony of about fifty pairs on Morris Island, June 10, 1911 (Bowdish & Philipp);² thirty nests found with fresh eggs. A second colony of about the same size found on Raccoon Key, Bull's Bay, June 12, 1910 (Bowdish & Philipp), of which ten or a dozen nests containing fresh eggs were examined.

Rynchops nigra Linn. BLACK SKIMMER.—S.R. Latest record: Nov. 30, 1911, when a flock of several hundred were observed migrating southward (Weston & Bragg).

Puffinus gravis (O'Reilly). GREATER SHEARWATER. Decomposed specimen found on Sullivan's Island beach, Sept. 4, 1911, one week after the hurricane of Aug. 27-28 (Bragg).³

Puffinus l'herminieri Lesson. AUDUBON'S SHEARWATER.—S.R. off coast. Specimen found dead on Sullivan's Island beach, Aug. 10, 1911, making the fifth record for the state (B. Chamberlain).⁴

Anhinga anhinga (Linn.). SNAKE BIRD.—S.R. Earliest record: Ashepoo River, Mar. 13, 1911 (Mitchell). Latest record: Otranto, Aug. 31, 1908 (Sass).

Pelecanus erythrorhynchos Gmel. WHITE PELICAN.—ACCIDENTAL. Specimen taken in Santee Swamp, Oct 26, 1910 (Rea).⁵ This is apparently the first specimen taken since 1814.

Pelecanus occidentalis (Linn.). BROWN PELICAN.—S.R. Earliest record: Feb. 22, 1910 (B. Chamberlain).

Fregata aquila Linn. FRIGATE BIRD.—ACCIDENTAL. Observed off the coast, Oct. 19, 1911, while the wind was blowing forty or fifty miles an hour in a northeasterly direction (Wayne).⁶ This is the third record for the state.

Mergus americanus Cass. AMERICAN MERGANSER.—W.V. Adult male taken on Back River, Jan. 2, 1911 (Chisolm).⁷ This

¹Spec. No. 11,011.

²BULL. CHAS. MUS., VII, 1911, 50.

³Ibid, VI, 1910, 57-58. Auk, XXVIII, 1911, 113.

⁴BULL. CHAS. MUS., VII, 1911, 22. Auk, XXVIII, 1911, 254. Spec. No. 7258.

⁵Auk, XXVII, 1910, 305-322.

⁶Ibid, 49. Spec. No. 7084.

⁷Ibid, 107.

is the only authentic record for the state and removes this species from the hypothetical list.

Anas rubripes Brewst. BLACK DUCK.—w.v. Earliest record: Oct. 16, 1910 (Weston).

Chaulelasmus streperus (Linn.). GADWALL.—w.v. A female of this rare species taken in Green Pond, Ashepoo River, Dec. 27, 1911 (Hanckel).¹

Marila americana (Eyt.). REDHEAD.—w.v. Adult male taken on Sullivan's Island by Herman Speissegger, Dec. 16, 1911 (Williams).² Known to sportsmen but no definite record heretofore.

Marila collaris (Donov.). RING-NECKED DUCK.—w.v. Since Dec., 1910, twenty-six specimens of this species have been recorded (Hanckel,³ Mitchell, Chisolm) and many additional specimens examined as they were carried by hawkers through the streets of Charleston, thus establishing the abundance of this species in the state. These birds were taken mainly on the Ashepoo River.

Clangula clangula americana (Bonap.). GOLDEN-EYE.—w.v. Earliest record: Nov. 4, 1911 (Chisolm), specimen taken at Goose Creek.

Harelda hyemalis (Linn.). OLD-SQUAW.—w.v. Four observed Feb. 2, 1911 (Wayne).⁴

Oidemia deglandi Bonap. WHITE-WINGED SCOTER.—w.v. Observed on Wando River, Jan. 20, 1911 (Wayne).⁵ This is the first authentic record for South Carolina and removes this species from the hypothetical list.

Olor columbianus (Ord). WHISTLING SWAN.—w.v. Taken Nov. 21, 1909, at "Rice Hope" on Cooper River (Lesesne).⁶ This is one of the few authentic records for this species in the state.

Mycteria americana Linn. WOOD IBIS.—P.R. Taken on the Isle of Palms, Dec. 29, 1909 (Wayne). This species is abundant in summer and a few have been observed to winter (Wayne), but

¹Spec. No. 7106.

²Spec. No. 7088. See note in this issue of the BULLETIN.

³BULL. CHAS. MUS., VII, 1911, 16.

⁴Record for this species in 1912 will be published in an early issue of the BULLETIN.

⁵Auk, XXVIII, 1911, 255-256. ⁶BULL. CHAS. MUS., V, 1909, 62.

a specimen has not heretofore been secured at this season. Mr. Wayne saw eight or ten Jan. 13, 1911.¹

Rallus elegans Aud. KING RAIL.—P.R. An albino of this species taken on Bull's Bay, Feb. 28, 1911.²

Porzana carolina (Linn.). SORA; CAROLINA RAIL.—T.V. Latest spring record: May 14, 1910 (R. Chamberlain). Earliest autumn record: Aug. 14, 1910 (McDermid), when a specimen was picked up on Sullivan's Island beach.³ A male in unworn plumage was taken alive on Spring Street, Charleston, Oct. 26, 1911 (Hyer).⁴

Coturnicops noveboracensis (Gmel.). YELLOW RAIL.—W.V. Latest record: Mar. 21, 1910 (Wayne), one specimen taken.

Creciscus jamaicensis (Gmel.). LITTLE BLACK RAIL.—S.R. This species is so rare in this state that every record is of value. Recorded (Weston) from Mt. Pleasant, May 28, 1908; Sept. 1, 1909; and Sept. 27, 1911. The specimen recorded on May 28 was taken by a negro in an oat-field and is now in the collection of Mr. A. T. Wayne.

Gallinula galeata (Licht.). FLORIDA GALLINULE.—P.R. Taken on Cooper River, Jan. 3, 1909 (Sloan); two observed at Otranto, Jan. 14, 1911 (Chisolm & Chamberlain). This species, abundant in summer, has seldom been recorded in winter.

Fulica americana Gmel. COOT.—P.R. This species was formerly considered a winter visitant, but additional records indicate that it is a permanent resident, although no evidence of breeding has yet been obtained. Records have been made as follows: May 8, 1910 (Weston); May 14, 1910, specimen taken (Chisolm); May 14, 1911 (Bragg); May 15, 1910 (Sass); May 20, 1911 (Chisolm); June 4, 1910 (Wayne); June 6, 1909 (Weston); July 7 and Aug. 31, 1908 (Sass).

Phalaropus tricolor (Vieill.). WILSON'S PHALAROPE. Rare. The only specimen of this western species taken in this state or anywhere on the Atlantic coast from New Jersey to Argentina was shot on Sullivan's Island, Sept. 7, 1910 (Chamberlain).⁵

¹Record for this species in 1912 will be published in an early issue of the BULLETIN.

²Spec. No. 7259.

³BULL. CHAS. MUS., VI, 1910, 51.

⁴See note in this issue of the BULLETIN.

⁵BULL. CHAS. MUS., 51. Spec. No. 7094.

Pisobia maculata (Vieill.). PECTORAL SANDPIPER.—T.V. Earliest autumn records: July 21, 1911 (Wayne); Aug. 8, 1910 (Chamberlain). Specimens were taken on both of these dates.

Numenius hudsonicus Lath. HUDSONIAN CURLEW.—T.V., a few stay through the summer but do not breed. Earliest spring record: Mar. 21, 1909 (Weston). Twenty-five were observed July 5, 1911 (Wayne). Latest autumn record: Oct. 14, 1911 (Weston).¹

Charadrius dominicus Müll. GOLDEN PLOVER. Rare. Specimens taken Nov. 4, 1911 (Wayne)² and now in the National Museum. This is the first record for this species since 1880.

Aegialitis meloda (Ord). PIPING PLOVER.—T.V., rare. Latest spring record: May 18, 1911 (Wayne), specimen taken.

Colinus virginianus (Linn.). BOB-WHITE.—P.R. This species bred in the city of Charleston in or near the grounds of Major T. G. Barker during the summer of 1910 (Sass).³ An albino, pure white with pink eyes, was taken near Montmorenci in Dec., 1909 (Kershaw).

Circus hudsonius (Linn.). MARSH HAWK.—W.V. Two unpublished early records are Aug. 24, 1894 (Wayne) and Aug. 28, 1910 (Weston). A late record is Apr. 29, 1911 (Weston).

Accipiter velox (Wils.). SHARP-SHINNED HAWK.—W.V. Earliest record: July 22, 1911 (Weston).⁴

Buteo borealis (Gmel.). RED-TAILED HAWK.—W.V. Earliest record: Aug. 28, 1907 (Weston & Sass). Latest record: Mar. 24, 1907 (Weston).

Falco peregrinus anatum (Bonap.). DUCK HAWK.—W.V. Additional records for this species are Sept. 26, 1894 (Wayne), two observed; Sept. 29, 1894 (Wayne), three together; Nov. 14, 1910 (Wayne); Nov. 28, 1907 (Wayne & Weston). In Oct., 1911, a male and female were captured on a vessel off the coast and presented to the Museum alive by Dr. J. A. Miles.⁵

(Continued in March.)

¹ BULL. CHAS. MUS., VII, 1911, 50.

² BULL. CHAS. MUS., VI, 1910, 49.

³ Auk, XXIX, 1912.

⁴ Ibid, VII, 1911, 50.

⁵ Ibid, 55.

LOCAL FAUNA

RECENT BIRD NOTES

Pigeon Hawk in Winter.—On February 26, 1911, took a specimen of this species (*Falco columbarius*) in the brown immature plumage in St. Andrews Parish, near Charleston. The skin is at present in the collection of the Charleston Museum. This is the first record for this species taken during the winter months. Mr. A. T. Wayne records (*Auk*, XXVIII, 1911, 265) the occurrence of two adults which he observed on Nov. 29, 1910, and Jan. 14 and 16, 1911, but was unable to secure. These records establish the Pigeon Hawk as a rare winter visitant in South Carolina.—JULIAN MITCHELL, JR.

Carolina Rail in Charleston.—On October 26, 1911, at about 8.30 p. m., I found a Carolina Rail (*Porzana carolina*) on the corner of Spring and Ashe streets in the City of Charleston. Though it could run, it seemed unable to fly and was easily captured.

It was kept alive for a day, during which it refused to eat and suffered difficulty in breathing. Otherwise it appeared to be in good condition, the plumage being perfectly fresh and unworn. When skinned it was found to be excessively fat. The skin is now in the Charleston Museum (Spec. No. 7094). The Carolina Rail or Sora is abundant in the marshes during migrations and has even been taken at Otranto on February 3, but this is the first record of its occurrence within the city.—E. A. HYER.

Redhead.—A male of this species (*Marila americana*) was shot by Mr. Herman Speissegger on Sullivan's Island, Dec. 16, 1911. The specimen was so badly mutilated that it could not be preserved as a skin, but the head was prepared by Mr. E. A. Hyer and is now in the Charleston Museum (Spec. No. 7088). The characteristic blue bill and yellow eye make the identification positive, and the record is important from the fact that this duck has never been reported by an ornithologist, although known to sportsmen and probably not excessively rare.—ELLISON A. WILLIAMS.

The Charleston Museum

UNDER THE AUSPICKS OF THE COLLEGE OF CHARLESTON

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

BIRDS OF SOUTH CAROLINA—SUPPLEMENT
RECENT BIRD NOTES

Volume VIII, Number 3

MARCH, 1912

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZŮCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 8 CHARLESTON, S. C., MARCH, 1912 No. 3

LOCAL FAUNA

BIRDS OF SOUTH CAROLINA

SUPPLEMENT¹

Falco columbarius Linn. PIGEON HAWK.—w.v. This species, hitherto considered a transient visitant, is now established as a winter visitant by the following records: Nov. 29, 1910 and Jan. 14 and 16, 1911 (Wayne);² Feb. 26, 1911 (Mitchell),³ specimen taken near Charleston.

Aluco pratincola (Bonap.). BARN OWL.—P.R. Breeding record: four eggs taken Sept. 24, 1910 (R. Chamberlain).⁴

Asio flameus (Pont.). SHORT-EARED OWL.—w.v. Specimen taken at Marion, Dec. 5, 1911 (Wheeler).

Cryptoglaux acadica (Gmel.). SAW-WHET OWL.—w.v., rare. Adult female taken by James P. Garrick, Jr. at Weston, Richland County, Nov. 11, 1909 (Wayne).⁵ This is the fourth record for this state.

Nyctea nyctea (Linn.). SNOWY OWL. Rare. Specimen taken near Winnsboro, Fairfield County, Nov. 28, 1908, now in the collection of Mr. A. T. Wayne. This is the first record since the time of Audubon and, as far as known, the fourth for the state.⁶

¹Continued from the February issue.

²*Auk*, XXVIII, 1911, 264.

³*Ibid.*, VI, 1910, 50. *Auk*, XXVIII, 1911, 112.

⁵*Auk*, XXVIII, 1911, 112.

³BULL. CHAS. MUS., VIII, 1912, 26.

⁶*Ibid.*, XXVII, 1910, 454.

Coccyzus americanus (Linn.). YELLOW-BILLED CUCKOO.—S.R. Earliest record: Apr. 8, 1911 (Hyer).

Coccyzus erythrophthalmus (Wils.). BLACK-BILLED CUCKOO.—S.R., rare. First authentic breeding record for the state: May 10 and 12, 1911 (Wayne),¹ two females taken with "lower breast and abdomen denuded of feathers, showing that incubation was going on." The following records have been received from the interior of the state: Summerton, May 5, 1910 (Kershaw); Walhalla, June 12, 1909 (Kershaw).

Antrostomus carolinensis (Gmel.). CHUCK-WILL'S-WIDOW.—S.R., on coast. Breeding record: two eggs taken at Sumter in 1906 (Levi).² The nest consisted of a slight depression in pine straw. Previous records have not credited this species with breeding so far from the coast.

Antrostomus vociferus (Wils.). WHIP-POOR-WILL.—W.V. on coast. S.R. in the mountains. Earliest record: Sept. 23, 1910 (Weston). Latest record: Apr. 1, 1911 (Wayne). Reported from Walhalla, May 18, 1909 (Kershaw).

Archilochus colubris (Linn.). RUBY-THROATED HUMMINGBIRD.—S.R. Second and third records for this species in December are Dec. 18, 1910 (Sass),³ and Dec. 30, 1910 (Sass); the first record being Dec. 18, 1909 (Hyer),⁴ specimen taken. The only November record is from Marion, Nov. 5, 1911 (Wheeler).

Tyrannus tyrannus (Linn.). KINGBIRD.—S.R. Earliest record: Mar. 12, 1910 (R. Chamberlain & McDermid).

Dolichonyx oryzivorus (Linn.). RICEBIRD.—T.V. Earliest autumn records: July 14, 1911 (Weston); July 27, 1911 (Wayne).

Icterus spurius (Linn.). ORCHARD ORIOLE.—S.R. Additional early records are Apr. 7, 1911 (Wayne), adult male taken; Apr. 10, 1908 (Sass).

Icterus galbula (Linn.). BALTIMORE ORIOLE.—S.R. near the mountains. T.V. in other parts of the state. This species, hitherto considered migratory in the upper part of the state and supposed not to occur on the coast, is now established as a summer resident

¹ Auk, XXVIII, 1911, 485.

² BULL. CHAS. MUS., VII, 1911, 15.

³ Spec. No. 11,123.

⁴ Ibid, VI, 1910, 10.

near the mountains and probably as a rare migrant nearer the coast by the following records (Kershaw): May 6, 1909, two males observed in Charleston; June-July, 1909, a pair breeding in a peach orchard at Walhalla, nest taken; June-July, 1910, a pair observed in the same orchard at Walhalla, nest not discovered; Dec. 26, 1911, male in winter plumage taken at Summerton and found to be blind in one eye. Frequently reported from Summerville, though on insufficient evidence.

Loxia curvirostra minor (Brehm). CROSSBILL.—w.v., irregular. Additional records: Feb., 1909 (Hyer),¹ specimen taken near Magnolia Cemetery in Charleston; Mar. 6, 1909 (R. Chamberlain), observed with goldfinches. A specimen was taken in Summerville several years ago and its skull is now in the collection of G. C. McDermid.

Spinus pinus (Wils.). PINE SISKIN.—w.v., irregular. Additional records: Aiken, Mar., 1909 (Kershaw); Summerton, Apr. 4, 1909 (Kershaw); Feb. 28-Mar. 21, 1911, abundant in western part of Charleston, many specimens being taken (Waring, Chamberlain, Hyer, Bragg); Nov. 16, 1911 (Wayne); Wadmelaw Island, Dec. 30, 1911 (B. & R. Chamberlain), about a dozen observed.

Poocetes gramineus (Gmel.). VESPER SPARROW.—w.v. Second earliest record: Oct. 10, 1910 (Wayne).

Passerculus princeps Mayn. IPSWICH SPARROW.—w.v. Reported Nov. 21, 1907 (Wayne), on mainland, where it is rarely found.

Passerculus sandwichensis savanna (Wils.). SAVANNAH SPARROW.—w.v. Earliest records: Sept. 18, 1911 (Wayne), one observed; Sept. 23, 1911 (Wayne), three observed.

Passerherbulus henslowii (Aud.). HENSLOW'S SPARROW.—w.v. Earliest records: Oct. 29, 1894 (Wayne); Oct. 24, 1910 (Wayne), specimen taken.

Passerherbulus lecontei (Aud.). LECONTE'S SPARROW.—w.v. Latest record: Mar. 8, 1910 (Wayne), specimen taken.

¹BULL. CHAS. MUS., VI, 1910, 44.

Zonotrichia albicollis (Gmel.). WHITE-THROATED SPARROW.—w.v. Earliest records: Magnolia Cemetery, Charleston, Oct. 2, 1910 (Bragg); Marion, Oct. 3, 1911 (Wheeler).

Passerella iliaca (Merr.). FOX SPARROW.—w.v. Earliest record: Summerville, Nov. 17, 1910 (McDermid).¹

Zamelodia ludoviciana (Linn.). ROSE-BREASTED GROSBEAK.—t.v., rare. Aiken, Dec. 2, 1908 (Kershaw), male and female observed.

Guiraca caerulea (Linn.). BLUE GROSBEAK.—s.r. Evidently less rare than recently supposed. Additional records: May 31, 1907 (Weston), male near Otranto; May 1, 1910 (Weston & Sass), male and female at Otranto; May 6, 1910 (Kershaw), male and female at Summerton; Apr. 24, 1911 (Wheeler), male at Marion; May 6, 1911 (Wheeler), about a dozen of both sexes; May 26, 1911 (Weston), male at Ashley Junction. Numerous breeding records have been secured from Sumter, where one observer (Levi) took four nests between June 13 and July 12, 1911. These records are as follows: June 13, nest in a wing elm near the road, four feet from the ground, containing four young which flew the next day. June 28, nest in dense undergrowth of smilax and grapevine, four and a half feet from the ground. A large snake skin was wound around the nest, which contained three young about five days old. July 7, male and female observed in woods with four young just beginning to fly. July 7, nest five feet from the ground in a small Black Jack oak in pine woods, placed next to the trunk and perfectly concealed. The nest, now in the Museum, is made of grass, fine branches, and paper, and is covered with spider webs but has no snake skin. It contained three eggs, one of which was pipped. July 12, nest in oak three feet from the ground; contained two eggs. Mr. Levi reports that in each case where he touched the nest he found it deserted the next day. Nests are reported (Kershaw) from Clarendon County and from the Piedmont section, the majority containing snake skins.

Passerina ciris (Linn.). NONPAREIL.—s.r. Earliest record: Summerville, Apr. 8, 1911 (McDermid).

¹See note in this issue for the Fox Sparrow in Charleston, Jan., 1912.

Piranga erythromelas Vieill. SCARLET TANAGER.—T.V. on coast. s.R. in upper part of state. Additional records: Mt. Pleasant, Apr. 16, 1911 (Riley); Mt. Pleasant, May 4, 1911 (Wayne),¹ specimen taken; Aiken, Apr. 29, 1909 (Kershaw); Summerton, May 9 and 11, 1910, and Oconee County, June, 1909 (Kershaw), nest taken with two² eggs.

Piranga rubra (Linn.). SUMMER TANAGER.—S.R. Latest record: Oct. 14, 1911 (Weston).

Petrochelidon lunifrons (Say). CLIFF SWALLOW.—T.V., rare. Charleston, Aug. 15, 1910 (Sass).² This is the fourth or fifth record for this species.

Hirundo erythrogaster Bodd. BARN SWALLOW.—T.V. Late record: June 22, 1910 (Wayne), bird in full song.

Bombycilla cedrorum Vieill. WAXWING; CEDARBIRD.—W.V. Earliest record: Charleston, Oct. 12, 1908 (Sass), flock of four. Latest record: Charleston, June 3, 1910 (R. Chamberlain), flock of about twenty-five; continuous records were made by the same observer, May 3-25.

Lanivireo solitarius (Wils.). BLUE-HEADED VIREO.—W.V. Earliest record: Oct. 13, 1911 (Weston).

Lanivireo solitarius alticola (Brewst.). MOUNTAIN SOLITARY VIREO.—W.V. on coast, rare. s.R. in mountains. Earliest record for coast: Nov. 24, 1910 (Wayne), specimen taken. These birds travel in flocks in the mountains of South Carolina but are not common (Kershaw). Nests were taken on Stump-house Mountain (1500 feet), Oconee County, June 17, 1910 (Kershaw). This is a lower elevation than hitherto recorded for the breeding of this species.

Helinaia swainsonii Aud. SWAINSON'S WARBLER.—S.R. Earliest record: Apr. 5, 1911 (Wayne), singing beautifully.

Helminthus vermivorus (Gmel.). WORM-EATING WARBLER.—T.V., breeding in the mountains. Earliest spring record: Russell's, Oconee County, May 2, 1909 (Kershaw). Latest autumn record: Navy Yard, Charleston, Oct. 10, 1911 (Weston).³

¹ *Auk*, XXVIII, 1911, 488.

² *Ibid*, VII, 1911, 51-52.

³ *BULL. CHAS. MUS.*, VI, 1910, 49.

Vermivora pinus (Linn.). BLUE-WINGED WARBLER.—T.V. in the interior, very rare. Second record: Graniteville, Apr. 19, 1909 (Kershaw), a male observed but not taken.

Vermivora rubricapilla (Wils.). NASHVILLE WARBLER. Herefore placed in hypothetical list of birds of the state. Now tentatively recorded on the strength of an observation made at Aiken, Apr. 19, 1909 (Kershaw).

Vermivora celata (Say). ORANGE-CROWNED WARBLER.—W.V., rare. Additional record: Aiken, May 3, 1909 (Kershaw).

Vermivora peregrina (Wils.). TENNESSEE WARBLER.—T.V., rare. Only spring record: May 11, 1909 (Kershaw).

Dendroica tigrina (Gmel.). CAPE MAY WARBLER.—T.V. Additional record: Aiken, ²Apr. 28, 1909 (Kershaw), a large flock which stayed for several days.

Dendroica coronata (Linn.). MYRTLE WARBLER.—W.V. Latest record: May 6, 1911 (Weston). A specimen observed at Otranto, May 1, 1910 (Weston & Sass), was in full breeding plumage.

Dendroica magnolia (Wils.). MAGNOLIA WARBLER.—T.V. in the interior. Additional record: Summerton, Apr. 17, 1909 (Kershaw).

Dendroica caerulea (Wils.). CERULEAN WARBLER.—T.V. in upper part of state. Additional record: Aiken, Apr. 20, 1909 (Kershaw).

Dendroica pensylvanica (Linn.). CHESTNUT-SIDED WARBLER.—T.V. in upper part of state. S.R. in the mountains. Additional record: Aiken, Apr. 20, 1909 (Kershaw).

Dendroica kirtlandii Baird. KIRTLAND'S WARBLER.—T.V. Additional record: specimen observed at Oakland Plantation, Christ Church Parish, Oct. 4, 1910 (Wayne).

Dendroica palmarum (Gmel.). PALM WARBLER.—W.V. Earliest record: Marion, Sept. 2, 1911 (Wheeler).

Dendroica palmarum hypochrysea Ridgw. YELLOW PALM WARBLER.—W.V. Earliest record: Mt. Pleasant, Oct. 2, 1910 (Weston).

Dendroica discolor (Vieill.). PRAIRIE WARBLER.—S.R. Only breeding record for the coast: Navy Yard, Charleston, June 18, 1909 (Weston), adult observed feeding a fully-fledged young. This record proves correct the surmise of Mr. A. T. Wayne that this species occasionally breeds in the coast region.

Seiurus aurocapillus (Linn.). OVEN-BIRD.—T.V., a few wintering. Additional winter record: St. Andrews Parish, Dec. 23, 1911 (B. & R. Chamberlain).

Anthus rubescens (Tunst.). TITLARK.—W.V. Earliest record: Sullivan's Island, Sept. 10, 1911 (B. & R. Chamberlain).

Dumetella carolinensis (Linn.). CATBIRD.—P.R., most abundant during migrations; rare in summer, common in winter. Second breeding record for the coast: Sullivan's Island, June 30, 1910, nest containing three fresh eggs taken by W. S. Allan Jr., eggs now in the Museum. This species has been reported as breeding about Summerville but no nests have been taken.

Troglodytes aëdon Vieill. HOUSE WREN.—W.V. Earliest record: Sept. 16, 1910 (Wayne).

Telmatodytes palustris marianae (Scott). MARIAN'S MARSH WREN.—W.V. Earliest record: Charleston, Sept. 14, 1911 (B. & R. Chamberlain),¹ specimen taken.

Sitta pusilla Lath. BROWN-HEADED NUTHATCH.—P.R. Observed excavating hole, Jan. 20, 1911 (Wayne).

Regulus satrapa Licht. GOLDEN-CROWNED KINGLET.—W.V. Earliest record: Navy Yard, Charleston, Oct. 14, 1911 (Weston).²

Hylocichla mustelina (Gmel.). WOOD THRUSH.—S.R. Earliest record: Aiken, Mar. 17, 1910 (Kershaw). Eight nests either completed or in process of building were found in a clump of low oaks and pines at Summerton during Apr., 1910 (Kershaw).

CORRECTION. **Buteo borealis**.—The record for Aug. 28, 1907, attributed to Weston and Sass (February issue, p. 25), is erroneous and should be omitted.

L. M. BRAGG.

¹ Spec. No. 7089.

² BULL. CHAS. MUS., VII, 1911, 52.

LOCAL FAUNA

RECENT BIRD NOTES

Fox Sparrow in the City.—Marked and sudden changes of weather nearly always have an interesting effect upon the bird-life of the region affected. Practically everybody in Charleston noticed the great number of Fox Sparrows which appeared in the city during the heavy sleet storm of January 13 when 3.9 inches of sleet fell and the temperature dropped as low as 19.9°. It is not so generally known, however, that the birds remained more or less common in the city long after the blizzard was over. Up to February 20 they were seen nearly every day, usually in small numbers but sometimes in flocks of half a dozen or more, and even as late as the present writing, March 11, they are seen occasionally. Prior to the sleet storm the Fox Sparrow, as far as I know, had been recorded in the city only twice—one bird shot by Mr. Ellison A. Smyth, Jr., on December 24, 1887, and one seen by me on January 6, 1907: and the present instance is an interesting case of a species, hitherto almost unknown in the city, being fairly common there for nearly two months following a sudden and decided change of weather which caused it to appear suddenly and in great abundance.—HERBERT R. SASS.

Cardinal singing in winter.—In the city during mild winters the Cardinal usually begins singing regularly in early January, continuing in song from that time until the middle of July. It is remarkable that during the present winter, an unusually severe one, the first song should have been heard as early as Christmas day. Nor was this, so to speak, a mere transitory flash in the pan. Despite the severe cold waves that have followed one another in close succession the birds have continued to sing since Dec. 25, though, of course, by no means as constantly as in the spring.—HERBERT R. SASS.

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OF
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EDITED BY
PAUL M. REA

PROGRESS IN INSTALLATION
RECENT ACCESSIONS
LOCAL FAUNA
NOTES FROM THE MUSEUM

Volume VIII, Number 4

APRIL, 1912

The Charleston Museum

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 8 CHARLESTON, S. C., APRIL, 1912 No. 4

PROGRESS IN INSTALLATION

Recent issues of the BULLETIN have been taken up with special articles to the exclusion of any mention of the gratifying progress which has been made in installation of exhibits in the main hall.

For the first time it has been possible to run all departments of the Museum at their full capacity and to utilize our full equipment for the production and use of exhibits. Thus, while cases have been built or refinished in the carpenter shop, specimens and copy for labels have been prepared by Miss Bragg, Dr. Martin, and Mr. Memminger, and the Museum press has been busy printing labels. At the same time the routine work of administration, care of the library and working up of new accessions has gone on more efficiently than ever before, and the classroom and laboratory have been continuously in use by the classes of the College of Charleston, the Medical College, Ashley Hall, the Kindergarten Training School, special classes from the public schools, and by the Natural History Society.

On the evenings of February 20 and 26 the Museum was opened to public inspection in all departments and personally conducted parties of from fifteen to thirty followed each other at intervals of fifteen minutes about the building. They were taken first to the office of the director where the administrative system was explained, showing how all departments are coördinated, how work is planned, and how cost records and financial accounts are

devised to show the expense in detail of each piece of work. Next they learned the importance of the biological survey and how its records are filed and indexed. The preparation of herbarium specimens in all its stages was demonstrated with the assistance of young ladies of the Natural History Society, who have been mounting specimens while the data have been prepared by Mr. Memminger and Miss Bragg. Then followed inspections of the library stack room, the reading room, the reserve and study collections, and the specimen catalogs. In the large lecture room a fifteen-minute illustrated lecture descriptive of the whale which had just been installed in the exhibition hall afforded a brief rest before a tour of the carpenter and print shops, laboratories, and preparation rooms. The preparation of bird skins was demonstrated by boys of the Natural History Society who have made important records of rare species and added valuable specimens to the collections. In the main hall a number of demonstrators explained the purposes of the exhibits and methods of installation. On both evenings many visitors lingered until after eleven o'clock, and there can be no doubt but that the extent and detailed organization of the work of the Museum was a revelation to many.

Brief mention may be made of the principal exhibits installed since the first of the year, though detailed description of any must be postponed till a later time.

Special interest attaches to the hanging of the skeleton of the Baleen or Right Whale which is now one of the dominant features of the main hall. This specimen was captured in Charleston Harbor in 1880 and has long been one of the sights of the Museum in its quarters in the College of Charleston.

The first descriptive labels in permanent printed form were used in installing the carbon and general mineral exhibits. These are designed to tell an instructive and easily intelligible story of general interest, and the time spent over them by visitors is a gratifying evidence of success in attaining this object.

More recently a permanent exhibit of silk culture has been

installed with descriptive labels. Material for this was obtained from the special culture carried on by the Museum last spring. This year eggs have been distributed to persons in Charleston and other parts of South Carolina who wish to rear them. No public rearing will be made at the Museum, but material is being raised for future use in loan exhibits for schools.

Two groups of squirrels with printed labels have been installed in refinished cases, and a rearrangement of the collection of local birds has been made using an additional case so that the specimens are much less crowded and many species for which there was no room heretofore are included.

Two cases of monkeys and one containing a fine Florida tarpon have been refinished recently and placed on exhibition, and a forest floor has been added to the elk case.

Very few of the cases in the old Museum were movable and none of them were constructed of plate glass. It has therefore been necessary to build new cases for all large specimens. The expense of this explains the slow progress of installation. In order, however, to have specimens where they can be properly cared for and to give the public a better idea of the scope of the collections, a considerable amount of sash has been taken from the old cases and put together to afford temporary protection for material hitherto in storage or recently brought from the old building. In this way an exhibit of invertebrate fossils for teaching purposes, and a number of large mammals, including two camels, a moose, walrus, several sea lions and seals, two bears, llama, alpaca, and zebra, have been made visible. When properly installed these will give quite a new appearance to the exhibition hall.

The work of Mr. Memminger and his assistants has resulted in making practically all the herbaria accessible and properly recorded. Dr. Martin has cataloged the entire Booth collection of invertebrate fossils and has brought all the records of his department up to date.

In closing this report of progress it is unfortunately necessary

to state that the appropriation for maintenance will barely suffice to meet the necessary fixed expenses; that the roof requires repairs for which no money is available, that the printing shop has already been closed, and that the Museum is without funds to run the carpenter shop beyond the present month or to make any other improvements whatever.

RECENT ACCESSIONS

Dr. Martin has added to his many gifts to the geological department a very handsome and interesting series of gems and gem minerals which will soon to placed on exhibition.

Birds recently received include the Red-throated Loon recorded by Mr. Caspar Chisolm in this issue, Fox Sparrows taken in the city during the cold wave in January by Miss Mabel Pollitzer and Mr. F. S. Hanckel, Jr. Mr. Hanckel also presented heads of the Shoveller and Gadwall ducks. Mr. F. S. Hanckel presented specimens of the Gadwall, Widgeon, and Blue-winged Teal taken at the Bugbee Hunting Club on Ashpoo River. For the preparation of these as skins the Museum is indebted to Messrs. Caspar Chisolm and E. A. Hyer. Master C. P. Mitchell presented a grass parrot of an undetermined species.

Other recent accessions include a series of North Carolina garnets, some in the matrix of mica schist and one cut as a gem, presented by Mr. Samuel G. Stoney, Jr. Specimens of carborundum and coke were received from Mr. J. C. Reeves, shark jaws from McLeod Dickinson, the shell of a yellow-bellied Terrapin from Julian Mitchell, Jr., a Florida Free-tailed Bat from J. Douglas Smith, and a pair of extraordinarily large stone crab claws from Mrs. Harriette Kershaw Leiding. Miss Mabel Pollitzer gave a number of invertebrates collected at the Isle of Palms. The living snake collection was increased by a Black Snake taken in St. Andrews Parish by John Chisolm and Maynard Robertson, and by a very handsome specimen of the Red-bellied Snake collected by Mr. F. M. Weston, Jr., and described on another page.

A series of photographs and lantern slides showing the effects of the Charleston earthquake of 1886 and stereographs of the Mammoth Cave, Watkins Glen, and other localities of geological interest were presented by Mrs. J. E. Chichester.

Two fine large earthenware bowls and other Indian relics from Green Hill plantation, Kershaw County, have been loaned by Mr. George W. Witte of Philadelphia, through Mrs. St. James Cummings of Charleston. These add much to the interest of our Indian exhibit.

A series of large colored plates of fishes and game-birds has been presented by Mr. Augustine T. Smythe.

LOCAL FAUNA

Red-bellied Snake.—A specimen of this species (*Farancia abacura*), taken in St. Andrews Parish by Mr. F. M. Weston, Jr., April 14, constitutes the first record for the survey. This is one of the two species of rainbow snakes found in North America, and the present specimen measures fully five and a half feet in length and is as large round as a full-grown rattlesnake. Its coloring is a glossy, iridescent black above, with wedges of red on the sides and the belly red splotched with black. Being a burrowing species it will not live long in captivity unless allowed to cover itself with clay or sand. This specimen will be exhibited alive for a short time and then killed for the permanent collection.—L. M. BRAGG.

Red-throated Loon in Charleston Harbor.—Since the beginning of the biological survey the Red-throated Loon has been reported frequently from the waters about the city, but because Mr. Wayne has questioned these records they have remained tentative only until a sufficient number of specimens could be taken to substantiate them. The time has now come when we may state that the Red-throated Loon is not uncommon in Charleston harbor. Three specimens have been taken, as follows: Nov. 21, 1908, off South Battery, Samuel Lapham, Jr.; January 29, 1911, Ashley River near Broad St., James Foster; and April

1, 1912, off the Battery, Caspar Chisolm. Other records based on close study by careful observers during the winter may now be accepted as probably correct.—P. M. REA.

Black and White Warbler.—One bird seen in garden on March 23, 1912, constitutes the earliest record for this species of which we have data. Audubon says it arrives early in April. Wayne states that he has seen it in the middle of March, but says he has lost the record. He gives March 27 and 28 as the normal dates.

Chimney Swift.—Several observed near Legare Street on March 23. This is my earliest record except in 1902, and earlier, I judge, than Wayne's.¹

Both these unusually early records are interesting in that they seem to indicate that the fact that the spring has been unusually late will not make the spring migrants unusually late in arriving.

The hurricane and the Waxwings.—An interesting effect of the hurricane of August, 1911, upon the bird life of Charleston has just come to light this spring. For the first time in at least ten years the cedar Waxwing (*Bombicilla cedrorum*), usually a common bird in the city from January or February through April, has failed to put in an appearance. It is possible that a few may have been seen in the city by other observers; but in large and well-wooded lots and gardens in the lower part of town, where these birds are usually common in early spring, not one has been seen this year.

The reason is plain enough. The Waxwings have not come to town because the hurricane of last August so affected certain trees that the plant products to obtain which the Waxwings come to the city were not produced this spring. These plant products are mainly elm seeds and berries of the large-leaved or Japanese privet. The hurricane killed at least half the Japanese privet trees and so weakened the others that they produced no berries this year; while the elms that withstood the fury of the wind were so mutilated and lost so many of their smaller limbs and twigs that the elm seed crop this spring has been practically

¹The Chimney Swift was seen in the city this year on March 21 by Mr. Rhett Chamberlain and has been seen daily since that date.—EDITOR.

nil. As the Waxwings during their stay in the city feed mainly on elm seeds and privet berries, the absence of these two plant products is probably responsible for the absence of the birds.

Habits of the Loggerhead.—It would be worth the while of the members of the Natural History Society to watch the Loggerhead Shrike closely and try to get an accurate idea of how large a proportion of its food consists of small birds. The Loggerhead bears a bad reputation. He is supposed to slaughter many sparrows, warblers, and other small birds; and from this and from his habit of impaling the bodies of his victims on thorns and sharp twigs he has been given the name of "Butcher Bird." The question is whether the Loggerhead is really as black as he is painted. Does he kill small birds habitually or only on very rare occasions? Does he really deserve the persecution to which he is subjected? Isn't his bad reputation largely due to the fact that he is close kinsman to the Northern Shrike, who is known to be a villain? I have watched the Loggerheads in the city carefully for more than ten years and not until February 11 did I ever see one play the cannibal. On that day the ground was pretty well covered with snow and doubtless insect food was scarce, and probably the Loggerhead that I saw devouring a Myrtle Warbler had been pretty hard put to it to find any other food.

If the members of the Natural History Society would report to the Museum all that they can learn about the everyday food of the Loggerhead and especially any instances that come to their attention of Loggerheads killing or pursuing other birds, it would throw light on an interesting subject.—H. R. SASS.

NOTES FROM THE MUSEUM

The Museum is open free to the public on week days from 10 to 6. Children unaccompanied by an adult are admitted only on Saturdays.

Recent improvements include a much needed partition between the carpenter shop and the rear hall, and chairs with tablet writing arms for the classroom.

Arrangements are being made for the transfer of laboratory instruction in physiology from the Medical College to the Museum and the laboratory equipment will be considerably extended for this purpose. Mr. L. Wm. McGrath, now assistant in zoology, will become instructor in physiology next year.

The Home and School Association invited Professor Rea to speak at the Mitchell School February 16 on how the Museum can help the schools. On Sunday evening, April 21, Professor Rea spoke before the People's Forum on the relation of mosquitoes and flies to disease.

On Washington's birthday an all-day field trip by water was held as usual, the destination this year being Folly Island. Dredging in Stono Inlet and collecting on the front beach were the chief events and resulted in the addition of considerable interesting material for the biological survey. On March 21 a small party visited Otranto with Mr. Weston to study birds and secured a number of good migration records. Miss Bragg guided an enthusiastic party of botanists to the site of the early botanical garden of Andre Michaux about ten miles from Charleston, and several smaller trips have been conducted by other members of the Society.

The Charleston Museum

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

THE MUSEUM HERBARIA
NATURAL HISTORY SOCIETY
LOCAL FAUNA

Volume VIII, Number 5

MAY, 1912

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZÝCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
NATHANIEL W. STEPHENSON.....*Art*
EDWARD R. MEMMINGER.....*Fungi*

Curator of Books and Public Instruction

LAURA M. BRAGG

Secretary to the Director

LAURA L. WEEKS

Assistants

BARBARA K. BRAGG, *Library* L. WM. MCGRATH, *Zoology*

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BULLETIN

OF

THE CHARLESTON MUSEUM

LIBRARY
NEW YORK
BOTANICAL
GARDEN

VOL. 8

CHARLESTON, S. C., MAY, 1912

No. 5

THE MUSEUM HERBARIA

Two years ago the Museum had no working herbarium, today it has 2630 specimens well mounted, labelled, and arranged in a new herbarium case, accessible for instant reference.

I have called this collection a "working" herbarium to distinguish it from the classic Elliott herbarium which is too old and valuable to be submitted to daily use.

As is well known the Elliott herbarium was collected by Stephen Elliott and furnished the basis for the descriptions of species in his *Sketch of the Botany of South Carolina and Georgia* published in 1821 and 1824. Here are found Elliott's types. This herbarium has been frequently referred to in the pages of the BULLETIN and the story of its rescue from complete destruction by mice and insects has already been told. Several years ago it was sent to Biltmore, where it was cleaned and the nomenclature revised by Messrs. Beadle and Boynton, but it was not mounted, and no rearrangement was made of the original alphabetical order. The new nomenclature naturally disarranged this order and in consequence the Museum is now making a systematic classification of the entire Elliott herbarium based upon Small's *Flora of the Southeastern United States*. This precious inheritance is kept in a fire-proof safe and remains a distinct collection as heretofore, available to the specialist but not for daily use.

But to meet the popular demand for a knowledge of the flora of this section of the country the Museum has started a herbarium which is to be devoted primarily to South Carolina species. Specimens from outside the state are to be included in a so-called general collection and used for purposes of comparison, but for the next few years the botanical energies of the Museum will be concentrated on building up the South Carolina collection.

The nucleus of the South Carolina collection was found in a mass of mouse-riddled, insect-eaten, dirt-worn, and moulded material piled high in one of the galleries of the old Museum. Once, perhaps, this formed a useful herbarium, but thirty years of neglect had rendered much of it valueless and the rest inaccessible to students. No one knew what it might contain as no records had been preserved. With the assistance of Mr. E. R. Memminger, honorary curator of fungi, the task of sorting this material was begun late in the spring of 1911. By the end of the year over a thousand cryptogams and about two hundred flowering plants had been revised and accessioned. Although very little work is being done at present among the lower plants, some attention is being given to the ferns and Mr. Memminger is preparing a catalog of the fungi of the state. The principal work of the present year is among the flowering plants, and the number of these in good order has been increased to over fifteen hundred. More than two-thirds of these are from South Carolina and represent approximately nine hundred species. Less than a hundred and fifty specimens of recent date have been included although several hundred collected near Charleston during the last two years are ready to be added as soon as labels can be written.

Practically the entire South Carolina collection consists at present of material recovered from the old herbaria. Among these the collections of Dr. Henry W. Ravenel, Rev. Cranmore Wallace, and Dr. Francis Peyre Porcher have proved the wheat among the chaff. With a few exceptions they include all the

South Carolina material. Much of the rest was worthless, being either unlabelled or ruined by insects or mould, and has been destroyed, but any specimens hinting of possible value have been preserved for further examination after the local material has been worked up.

The most important discovery is the valuable collection of Dr. Ravenel. Beside the cryptogams there are over a thousand species of flowering plants from South Carolina alone. Six hundred and twenty-nine of these have been remounted and incorporated in the new herbarium. All are in excellent condition, carefully labelled and initialed by Dr. Ravenel. A few of the specimens came from about Charleston and a few from Aiken, but the main part was gathered in the Santee Canal region, where Dr. Ravenel made his home until he moved to Aiken at the age of thirty-nine. Internal evidence would indicate that this collection was made during the forties, and was probably given to the Museum soon after its establishment at the College of Charleston in 1850. It was at the meeting of the American Association for the Advancement of Science held in Charleston in that year that Ravenel presented his Catalogue of the Natural Orders of Plants, inhabiting the vicinity of the Santee Canal, S. C.

This catalog was based upon a collection made "in the vicinity of the Santee Canal, St. John's (Berkley) Parish, S. C. The plants have been collected mostly in the neighborhood of Black Oak, and between that place and Cooper River eight or ten miles South. My excursions have occasionally led me as far as the Santee Swamp, ten or twelve miles North, and some few in my catalogue have been found only at Eutaw Springs, twenty miles North-West. Probably nineteen-twentieths of the Phænogamous plants have been found within the first named limits, and with very few exceptions, all the Cryptogamia."¹

Ravenel lists 1075 species of phænogamous plants, practically the number contained in the Museum's Ravenel collection.

¹Proc. Amer. Asso. Adv. Sci., Charleston meeting, 1850, p. 3.

The arrangement and nomenclature in the Catalogue and the herbarium are identical and even the number of species for a genus agrees in most cases. To my mind there is small doubt that the herbarium now in the Museum forms the original collection upon which Ravenel based his catalog.

Although the life of Dr. Henry W. Ravenel is well known, nevertheless a review of the main facts may not come amiss. He was born May 19, 1814, in St. Johns Parish, Berkeley County, South Carolina. After receiving his degree at the University of South Carolina in 1832 he lived on his plantation, Pooshe, in St. Johns until 1853 when he moved to Aiken to live with his son. St. Johns, Berkeley, during the later forties was a center of botanical research. Cranmore Wallace was collecting a herbarium; Francis Peyre Porcher was studying its flora from a medical view-point and published in 1847 his *Medico-Botanical Catalogue of the Plants and Ferns of St. Johns, Berkeley, South Carolina*; while Ravenel was not only in Thomas Walter's own region gathering a collection of flowering plants equal in number to those described in Walter's *Flora Caroliniana*, but was also making an extensive study of the lower forms of plant life.

Ravenel indeed, is better known for his work with the fungi than with higher forms. In 1853-60 he issued the rare *Fungi Caroliniani Exsiccati* in five volumes, each volume containing one hundred species of pressed and mounted fungi. Only thirty sets were issued and the Museum is fortunate to own volume 1 of one of these sets through the generosity of Dr. C. W. Kollock. From 1853 until his death Ravenel seems to have devoted himself largely to the study of fungi. From 1878 to 1882 he published in collaboration with M. C. Cooke the *Fungi Americani Exsiccati*, in eight volumes. He also gathered a large herbarium of cryptogams which was sold to the British Museum in 1893. A collection of flowering plants was sold to Converse College some years later. The nature of this collection and its value as compared with that in the Museum we hope to learn in the near future. Botanists seem to know of the Converse College herbarium but of the valuable Santee Canal collection they have remained in ignorance. Ravenel died at Aiken, July 17, 1887. All in all he probably possessed a specific knowledge of more

classes of plant life than any other American botanist. Unquestionably he was without equal in his knowledge of the cryptogams of the southern states.

Cranmore Wallace is remembered in South Carolina as a churchman but the herbarium which he collected and gave to the Museum entitles him to the interest of botanists. Very little seems to be known of his life. He was born at Atworth, New Hampshire, February 27, 1802.¹ As a young man he taught school for several years in Boston and then came to South Carolina to take charge of a school at Cheraw. From the Journal of the Convention of the Protestant Episcopal Church in South Carolina we learn further that he was a candidate for orders in 1834, was ordained in 1836 and became assistant minister of St. Andrew's Parish and teacher in the South Carolina Academy. In 1839 he was made rector of St. James Church, James Island, and principal of the South Carolina Society's Male Academy. He came to Charleston as minister-in-charge of St. Johns Chapel in 1841, only to remove that same year to St. Johns Parish, Berkeley, where he remained as rector until 1848. He then returned to Charleston to become minister of St. Stephen's Chapel and there stayed until his death, February 3, 1860. He was for nineteen years secretary of the Convention and for many years, manager of the Church Home of the diocese. He is described by those who remember him as a tall, spare, grizzled-gray man of quiet and kindly bearing, greatly loved by his people. In Charleston he lived in a large brick house on Laurens Street.

The period of Wallace's botanical activity seems to have been during his residence in St. Johns, Berkeley. It is uncertain how large his herbarium originally was, as it has not been well preserved. A large portion has been completely destroyed but three hundred twenty-seven specimens have been saved and placed in the herbarium. A few more still may be rescued. Practically all of these were collected in St. Johns, Berkeley, and along the Cooper River in 1846 and 1847, years when Ravenel was working on the collections for his Catalogue. It would be interesting to learn what influence the older man had upon Ravenel. That they worked together is shown by an occasional specimen from Wallace in the Ravenel herbarium, while Ravenel's

¹Charleston Daily Courier, Feb. 4, 1860.

specimens are frequent in the Wallace collection. Yet Wallace, working in practically the same region, occasionally has a species which Ravenel had missed. Wallace's collection shows decidedly the influence of Moses A. Curtis, specimens frequently being identified by him. Wallace's collection largely duplicates Ravenel's, yet is not lacking in a distinctive value of its own.

These two collections and that of Dr. Porcher, covering thoroughly as they do a limited area of the state, supply an excellent foundation for a herbarium of South Carolina flora. Plans are now made for the extension of the herbarium by collecting in the upper part of the state. Ultimately the Museum hopes to publish a catalog of the flora of the state as it has already done of the birds. To facilitate this object a plant survey is being made. Records of occurrence and seasonal data are filed on species cards. Entries are made for all herbarium specimens. A second card, known as the publication record form, bears page references to published records for species within the state.

To Mr. Memminger the Museum is indebted for assistance on the biological survey and for much of the work of revision of the Ravenel and Wallace collections.

A statistical summary of the Museum herbarium made on May 16 gives the following figures:

SOUTH CAROLINA COLLECTION

NON-FLOWERING PLANTS

ALGAE.....	25
FUNGI.....	462
LICHENS.....	94
LIVERWORTS.....	19
MOSESSES.....	48
FERNS.....	12
	<hr/>
	660

FLOWERING PLANTS

RAVENEL HERBARIUM.....	629
WALLACE HERBARIUM.....	327
PORCHER HERBARIUM.....	2
RECENT COLLECTION.....	146
	<hr/>
	1104

1764

GENERAL COLLECTION

NON-FLOWERING PLANTS.....	436
FLOWERING PLANTS.....	430
	<hr style="width: 100px; margin-left: auto; margin-right: 0;"/> 866
TOTAL SPECIMENS IN HERBARIUM.....	<hr style="width: 100px; margin-left: auto; margin-right: 0;"/> 2630

There still remain to be revised some four hundred sheets of the Ravenel herbarium, the entire Porcher herbarium, the extent of which is still unknown, and a small number of miscellaneous South Carolina specimens, beside a mass of material from other parts of the United States and from foreign countries.

LAURA M. BRAGG.

NATURAL HISTORY SOCIETY

The Natural History Society has closed its year's work with most successful meetings and field-trips. Dr. Burt G. Wilder, recently of Cornell University, spoke before Section A on May 9, his charming reminiscences affording much pleasure. Among other subjects, he touched upon his discovery on Folly Island in 1863 of the silk spider of Carolina (*Nephila wilderi*). This spider is occasionally taken on the coast islands and is of particular interest because of the strength of its silk which may be woven into fabrics.

Section A has recently enjoyed two botanical field trips, one to the site of Andre Michaux's botanical garden near Ten Mile Station, on April 19 and a second to the Navy Yard on May 17. Both were attended by a large and enthusiastic party of flower students.

Section B held its final meeting on May 16. Miss Bragg spoke on "The Parts of a Bird." The Section B field trip will be held on the Isle of Palms on June 1. Each member may bring one guest and any new members joining for next year are entitled to the trip.

LOCAL FAUNA

Kentucky Warbler.—Although this locally distributed species has been well known for many years to Mr. A. T. Wayne, it was not reported by a member of the Natural History Society until May 2, 1912. On that date, I watched a handsome male for some minutes in a thick, rather damp patch of woods at the Navy Yard. This record is of particular interest as Mr. Wayne has found the species to be very rare in spring.—F. M. WESTON, JR.

Sun-fish.—A Sun-fish (*Mola mola*) was taken in a fish trap about three miles off the mouth of Charleston harbor, May 11, 1912, and presented to the Museum by Mr. W. P. Hyams, Jr. This is the first record of our survey for this curious species whose ovate body with compressed sides and truncated tail is well described by the name *Mola*—a millstone. The dorsal and anal fins are very large, but the lack of a tail makes the Sun-fish a poor swimmer. The present specimen weighed 246 lbs. and measured 4 ft. 5½ in. total length; 5 ft. 6 in. total depth over fins; and 2 ft. 7 in. greatest depth of body. The Museum was unfortunately not able to mount the skin, but will preserve the skeleton.

Crab-eater; "Cabio".—Three specimens of this fish were taken at the same time as the Sun-fish described above. They were about five feet long and weighed about sixty pounds. This species is also new to the survey but is said by the fishermen to occur in small numbers irregularly during the whole year, but chiefly in summer. It is well regarded as a food-fish in the local market.—P. M. REA.

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OF
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EDITED BY
PAUL M. REA

THE SECESSIONVILLE HERONRY
BOTANICAL FIELD WORK
NOTES FROM THE MUSEUM

Volume VIII, Number 6

OCTOBER, 1912

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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THE CHARLESTON MUSEUM

VOL. 8 CHARLESTON, S. C., OCTOBER, 1912 No. 6

THE SECESSIONVILLE HERONRY

An event of the past summer which should be deeply interesting to all students and lovers of birds was the purchase of the Secessionville herony and its presentation to the Charleston Museum to be kept by the Museum as a permanent refuge for the many hundreds of herons which make their homes there every spring and summer. This is probably the most effective step ever taken in this state for the preservation of our herons and it is doubly interesting because of the fact that in addition to the commoner species breeding on the island a large colony of the very rare Snowy Egret (*Egretta candidissima*) is established there.

The purchase of the heronry was made just in time to prevent its utter destruction. In fact, it is a great pity that the place was not bought long ago. The fact that Snowy Egrets were breeding in the heronry was discovered in May, 1908, and since that time the place has been under the protection of the Audubon Society, which has tried hard, but not always with success, to keep the plume hunters from raiding the heronry. This spring however, unknown to the society or to anybody in Charleston interested in bird life, the owner of the island proceeded to remove all the bushes in which the herons had been accustomed to breed and to plant the island in hay. Of course, the result was disastrous to the herons. Probably two thirds of the total number of birds breeding on the place were driven away. Those

that remained built their nests in a small patch of bushes that had been spared when the ground was cleared, and in the trash piles deposited around the borders of the island.

The disaster which had befallen the heronry became known to local bird lovers in June and an article was published in *The News and Courier* telling the sad story of what had happened. So much interest was at once aroused that a number of people offered to contribute to a fund for the purchase of the island and the re-establishment of the heron colony. *The News and Courier* announced that it would receive contributions to this fund and in a short time enough money was pledged to permit of the purchase of the island for the sum of four hundred and fifty dollars for the two acre tract. While the land was worth nothing like this sum, it was nevertheless realized that to preserve what was really a natural marvel and one of the most wonderful bird cities in this country justified a large expenditure; and the generosity of those who offered to contribute to the fund was amply large enough to accomplish this end. It was decided that the heronry should be turned over to the Museum to be maintained as a permanent home for the herons. The Museum will have the co-operation of the Audubon Society in protecting the herons from plume hunters.

The Museum is now the owner, therefore, of a very wonderful bird city and of one of the largest colonies of the Snowy Egret now in existence. Last summer there were probably about three hundred Snowies breeding on the island with probably three or four hundred herons of other species. Before the bushes were destroyed the total number of herons on the island was very much larger, estimates varying from three to seven thousand. Apparently, however, the number of Snowies was not sensibly diminished by the removal of the bushes, this species being about as abundant last summer as it was the summer before. The birds which deserted the island after it had been cleared were mainly of the commoner species.

The next work before the Museum in connection with the her-

onry is to replant it with bushes so that the herons may have suitable places in which to build their nests when they return to the island next spring. Mr. Sandiford Bee of James Island, who throughout has taken the deepest interest in the heronry and has exerted himself to prevent plume hunters from destroying birds, has kindly offered to have the work of replanting the island done at cost. It should be done late this month or in November. This is an absolutely necessary step in restoring to the birds their old home and in reestablishing this wonderful avian city.

HERBERT R. SASS.

NOTE. The cost of replanting the island is estimated at not more than fifty dollars. The Museum has no funds which can be applied to this purpose, and for this reason it is necessary to appeal to the public, which has so generously contributed to the purchase of the island, for the small sum of money required to accomplish the purpose of the reservation. Contributions may be sent to the director of the Museum.

The list of contributors to the purchase fund is as follows: Miss Elizabeth Adger, \$5; Mrs. James Allan, \$100; Mr. Wm. M. Bird, \$25; Mr. J. Ross Hanahan, \$133.50; Mr. John Kershaw, Jr. \$1; Mr. Henry R. Laurens, \$10; Miss Anna C. Neufville, \$2; Mrs. Felix Prendergast, \$5; Mr. H. R. Sass, \$10; Mr. Don Seitz, \$10; Mr. T. S. Wilbur, \$5; Mr. Ellison A. Williams, \$10; Mr. Henry P. Williams, \$133.50: Total, \$450.

EDITOR.

BIOLOGICAL SURVEY

BOTANICAL FIELD WORK

In the earlier days South Carolina held a distinguished position in the botanical world; its botanists were among the foremost America has produced. But since the death of Dr. Henry W. Ravenel, Prof. Lewis R. Gibbes, and Dr. F. Peyre Porcher practically no botanical work had been done by resident South Carolinians. Prof. W. C. Coker, professor of botany in the University of North Carolina, was born in South Carolina and has published the most important papers in recent years on the flora of the state. His *Plant Life of Hartsville, S. C.*¹ is the first careful detailed study of the flora of a limited locality since Ravenel's paper on the Santee Canal region. Men from the big institutions of the north or from neighboring states have collected here from time to time and have carried away the results of their labor to enrich their own herbaria. Even their published articles are seen by few in the state. It would probably be impossible today to find an herbarium containing anything like a complete representation of South Carolina plants, certainly not in South Carolina itself.

It is due to a realization of these facts that the Charleston Museum has undertaken a plant survey of the state, a survey which will ultimately, it is hoped, show the distribution of all known species within the state, in what herbaria specimens of each species are to be found, and bibliographical data relating to the species.

This survey was started in 1909 and until the present summer has not extended beyond the coast region. In order to enlarge its scope and to learn personally something of the flora of other parts of the state I have spent the months of July and August and one week of June collecting at Sumter, in the region about Keowee, and at Caesar's Head. During the first half of August I was across the line in North Carolina, observing and analy-

¹ *Jour. Elisha Mitchell Society*, XXVII, 1911, 169-205.

sing but not collecting. The mass of material gathered will greatly increase the value of the Museum herbarium.

Along with my study of plants I have tried to discover what herbaria there are in the state and what botanical work is now being done. I have visited a number of colleges and talked with representatives of others. As far as I have been able to learn, the Charleston Museum and Clemson College are the only institutions in the state that are doing any field work along botanical lines. Several colleges have small collections of pressed plants gathered solely for class use; the University of South Carolina has four fascicles of Ravenel's *Fungi Caroliniani Exsiccati*; and Converse College is the fortunate possessor of a large herbarium gathered by Dr. Henry W. Ravenel.

This Converse College herbarium deserves particular description. A desire to examine and catalog it was one of the chief factors in determining the nature of my summer work, but the herbarium has never been taken from the wrappings in which it was received at the time of purchase and the key to the laboratory in which it is stored had been carried away by the professor in charge. There being no duplicate or master keys at Converse, it was not until the very day of my return to Charleston that I was able to see the herbarium, Professor Hutchinson having then brought back to Spartanburg the all important key. Access to the herbarium once gained, difficulties vanished and the cordial co-operation of Professor Hutchinson has made it possible to arrange for the cataloging of the herbarium during the next few months. This difficult piece of work has been intrusted to Miss Agnes Ravenel of Spartanburg. My examination of the herbarium was necessarily superficial. I was able, however, to determine its general nature and its relation to the Ravenel herbarium of the Charleston Museum. Dr. Ravenel seems to have made two collections of phenogamous plants. One, now in the Charleston Museum, was collected in the vicinity of the Santee Canal prior to 1850, and upon it was based Ravenel's paper entitled *Catalogue of the Natural Orders of Plants*, in-

habiting the vicinity of the Santee Canal, S. C.² The second is the herbarium now at Converse. This probably contains the largest collection of South Carolina plants in the State. It represents Ravenel's work among the phenogams from 1850 or more exactly from 1853, the date of his removal from the Santee country and to Aiken, S. C., until his death in 1887, and includes many extra-South Carolina specimens received through exchange as well as the main South Carolina collection. The South Carolina portion covers the state generally, though how completely the new catalog must determine. It is most desirable that this Ravenel herbarium should be made accessible to botanists and it is hoped that Converse's new endowment will enable the authorities to properly house and care for such a valuable possession.

Clemson College can claim no old and classic herbarium but it has the distinction of having done more field work than any other institution in the state. Its work among the cryptogams has been considerable while its herbarium of South Carolina phenogams contains about 2000 specimens, representing 620 determined species. These specimens were collected chiefly by A. P. Anderson in 1897-98, and by H. D. House in 1906. All but a small per cent were found within a radius of twenty miles of the College. The herbarium is well mounted and classified, is accessible and in good condition. No important additions have been made since Dr. House left Clemson but Mr. A. B. Massey of the botanical department has for two years been making a careful study of the local flora and may be expected to publish results from time to time. I spent the month of July within two miles of Clemson College and have had ample opportunity to study its herbarium. With the assistance of Miss Elizabeth P. Ravenel and Miss Nannie P. Ravenel I have cataloged all of the South Carolina specimens and am now recording them in the plant survey files. I wish here to express my appreciation of the generous way in which Professor Barre and other

² *Proc. Amer. Asso. Adv. Sci.*, Charleston meeting, 1850, 2-17. See also *Bull. Chas. Mus.*, VIII, 1912, 43-49.

members of the botanical department at Clemson have forwarded the plant survey, placing at my disposal the results of their work for years past and promising assistance for the future. With the cooperation of Clemson's botanical workers the Museum trusts that it will be only a question of time before the known species of the state, backed by herbarium specimens, are recorded in the plant survey.

Laura M. Bragg.

NOTES FROM THE MUSEUM

The Museum is open free to the public daily, except Sunday, from 10 to 6. Children under 12 will be admitted on Saturdays only, unless accompanied by an adult.

The opening of the fall work finds the Museum in better condition in most respects than ever before. All the working departments are very satisfactorily organized and are running more efficiently. The installation of exhibits may be expected to make marked progress during the winter, and the educational work is already organized on broader lines. The most serious problem confronting us this year is the condition of the roof. This part of the building suffered especially during the time the building was unoccupied before it was obtained by the Museum. Since then it has been patched continually, and the time has come when the need of a new roof is imperative. The Museum is without funds for this work, although serious damage to building and contents result from every rain.

The department of public instruction is now for the first time definitely affiliated with the public school system and the use of travelling exhibits furnished by the Museum becomes an integral part of the school program.

A new laboratory course in physiology is being given at the Museum for the sophomore class of the Medical College of South Carolina. Mr. L. William McGrath, who was assistant in zool-

ogy last year, worked in the physiological laboratory at the University of Chicago during the summer and has been appointed instructor in physiology and zoology on the Museum staff.

Miss Rena Rowell has been appointed secretary to the director, succeeding Miss Laura L. Weeks, who was obliged to resign on account of ill health.

Both sections of the Charleston Natural History Society held meetings in October. Twelve members of Section B graduate this month into Section A. This is the most favorable season for new members to join the society and a considerable number have been received already. Visitors are always welcome at the meetings, but the field excursions are open only to members. Section A will meet again on November 7, and Section B on the 14th.

Miss Bragg is organizing a class in botany, open to all members of the Natural History Society. The object of the course is to learn methods of plant analysis and to acquire a knowledge of local flowering plants.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distribution, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

Volume I of this series began in April, 1905, and is complete in 5 numbers. Subsequent volumes consist of 8 numbers each. A title page and index to the first five volumes was published in the issue of December, 1909.

Sent prepaid to any address for 25 cents a year. Single copies 5 cents each.

(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I Birds of South Carolina, by Arthur Trezevant Wayne.
Pp. XXI + 254. Price: paper, \$2.75; cloth, \$3.25.

II Catalog of the Mollusca of South Carolina, by William G. Mazýck. *In preparation.*

III Birds of the City of Charleston, by Herbert Ravenel Sass. *In preparation.*

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

NOTES ON FLORA ABOUT CLEMSON COLLEGE
THE NATURAL HISTORY SOCIETY
LECTURES ON HEREDITY
CLASS IN BOTANY
NOTES FROM THE MUSEUM

Volume VIII, Number 7

NOVEMBER, 1912

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZYCK..... *Conchology*
DANIEL S. MARTIN..... *Geology*
ARTHUR T. WAYNE..... *Ornithology*
NATHANIEL W. STEPHENSON..... *Art*
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Instructor in Physiology and Zoology

L. WM. MCGRATH

Secretary to the Director

RENA ROWELL

Assistant in Library

BARBARA K. BRAGG

THE CHARLESTON MUSEUM was organized in March, 1773, by the Charles Town Library Society. In 1815 it was transferred to the Literary and Philosophical Society of South Carolina, and in 1828 was deposited in the Medical College of South Carolina. In 1850 the Museum was transferred to the College of Charleston, where it was known as the College of Charleston Museum. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....\$ 10	PATRONS.....\$ 500
SUSTAINING MEMBERS.... 25	BENEFACTORS..... 1000

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 8 CHARLESTON, S. C., NOVEMBER, 1912 No. 7

NOTES ON THE FLORA ABOUT CLEMSON COLLEGE

Clemson College is located in the foot hills of the Blue Ridge Mountains in the eastern corner of Oconee county and the southern corner of Pickens county. The soil is largely clay and to some extent "Cecil sandy loam." Our woodlands are mixed broad leaved and coniferous trees. In a few places one finds a small almost pure stand of beech, *Fagus americana* Sweet; also small stands of pine, *Pinus taeda* Linn.

In the low grounds along the streams are to be found the tulip tree, *Liriodendron tulipifera* Linn.; hackberry, *Celtis occidentalis* Linn.; red maple, *Acer rubrum* Linn.; sweet gum, *Liquidamber styraciflua* Linn.; willow oak, *Quercus phellos* Linn.; American hornbeam, *Carpinus caroliniana* Walt.; American holly, *Ilex opaca* Ait.; deciduous holly, *Ilex decidua* Walt.; birch, *Betula* sp.; willow, *Salix* sp.

On the higher grounds and hills there are scattered, here and there, specimens of white oak, *Quercus alba* Linn.; red oak, *Q. rubra* Linn.; post oak, *Q. stellata* Wand.; scarlet oak, *Q. coccinea* Wand.; black jack, *Q. nigra* Linn.; black oak, *Q. velutina* Lam.; hickory, *Carya* sp.; black gum, *Nyssa sylvatica* Marsh.; flowering dogwood, *Cornus florida* Linn.; sour wood, *Oxydendron arboreum* DeC.; persimmon, *Diospyros virginiana* Linn.; box elder, *Acer negundo* Linn.; and a few specimens of silver bell tree, *Halesia tetraptera* Linn.; and ash, *Fraxinus* sp.

Below the trees the undergrowth consists chiefly of the saplings but mixed in, one finds, on rough steep slopes, near the streams, a few specimens of mountain laurel, *Kalmia latifolia* Linn.; flame azalea, *Rhododendron calendulaceum* Torr.; pinkster flower, *R. nudiflorum* Torr.; black haw, *Viburnum prunifolium* Linn.; Hercules club, *Aralia spinosa* Linn.; small buckeye, *Aesculus parviflora* Walt.; horse sugar, *Symplocus tinctoria* L'Her.; sweet scented shrub, *Calycanthus floridus* Linn.; strawberry bush, *Euonymus americanus* Linn.; itea, *Itea virginica* Linn.; red bud, *Cercis canadensis* Linn.

Sumac, *Rhus glabra* Linn.; wild plum, *Prunus americana* Marsh.; sassafras, *Sassafras officinale* Nees.; wild cherry, *Prunus serotina* Ehrh.; and hawthorn, *Crataegus* sp., are found on higher ground often in small associations, this is especially true of wild plum.

On the slopes of our woodland ravines the herbaceous plants catch and hold the eye with keenest interest throughout the year. In the earliest spring before the trees have put out any signs of spring one, when climbing over the wooded slopes, is delighted at the sight of the liver-leaf, *Hepatica triloba* Chaix., which is bravely holding its head above the brown leaves, that have protected it during the winter. Later the rue anemone, *Anemonella thalictroides* Spach, appears and pretty soon the colonies of wake robin, *Trillium sessile* Linn. spring up. As the spring grows older other plants in this location appear, such as *Obolaria virginica* Linn.; Indian cucumber, *Medeola virginica* Linn.; bell wort, *Uvularia perfoliata* Linn.; Solomon's seal, *Polygonatum biflorum* Ell.; false Solomon's seal, *Smilacina racemosa* Desf.; blood root, *Sanguinaria canadense* Linn.; may apple, *Podophyllum peltatum* Linn.; atamasco lily, *Zephyranthes atamasco* Herb.; trailing arbutus, *Epigaea repens* Linn.; yellow star grass, *Hypoxis erecta* Linn.; wild cranesbill, *Geranium maculatum* Linn.; downy yellow violet, *Viola pubescens* Ait.; halbert leaved violet, *Viola hastata* Michx.; violet wood sorrel, *Oxalis violacea* Linn.; false mitre wort, *Tiarella cordifolia* Linn.; robin's plantain, *Erigeron bellidifolius* Muhl.; galax, *Galax aphylla* Linn.; blue gentian,

Gentiana quinquefolia Lam.; phlox, *Phlox reptans* Michx.; pine sap, *Monotropa hypopitis* Linn.; Indian pipe, *Monotropa uniflora* Linn.; jack-in-the-pulpit, *Arisaema triphyllum* Torr.; wild ginger, *Asarum arifolium* Michx. The muscadine, *Vitis rotundifolia*, Michx.; yellow jessamine, *Gelsemium sempervirens* Ait.; trumpet honey suckle, *Lonicera sempervirens* Ait.; *Decumaria barbata* Linn. and *Bignonia capriolata* Linn. are found climbing the trees in this location.

On higher ground and open woodland and on the edge of woods the bird-foot violet, *Viola pedata* Linn. is found in quantities. Also in this location are found: catch fly, *Silene virginica* Linn.; Indian pink, *Spigelia marylandica* Linn.; houstonia, *Houstonia longifolia* Geartn.; innocence, *Houstonia coerulia* Linn.; gerardia, *Gerardia grandiflora* Benth.; and *Gerardia tenuifolia* Vahl.; St. Andrew's cross, *Ascyrum cruz-andreae* Linn.; false indigo, *Baptisia alba* R. Br.; vetch, *Vicia caroliniana* Walt.; wild sensitive plant, *Cassia nititans* Linn.; goat's rue, *Tephrosia virginiana* Pers.; aster, *Aster patens* Ait.; *Sphenopholis pallens* (Spreng) Scribn.; self heal, *Prunella vulgaris* Linn.; sensitive briar, *Schrankia uncinata* Willd.; partridge berry, *Mitchella repens* Linn.; moss pink, *Phlox subulata* Linn.; *Vincetoxicum carolinensis* (Jacq.) Britton; blue curls, *Trichostema lineare* Nutt.; spider wort, *Tradescantia virginica* Linn.; blue eyed grass, *Sisyrinchium angustifolium* Mill.; prince's pine, *Chimaphila maculata* Persh.; *Aphyllon uniflora* Gray.

In the field and open waste lands still different flora is to be found. The larger part of our open uncultivated fields is covered with broom sedge, *Andropogon virginicus* Linn.; but in places one finds fair stands of Japan clover, *Lespedeza striata* Hook & Arn.; *Paspalum dilatatum* Poir.; *Paspalum laeve* Michx.; crab grass, *Panicum sanguinale* (Linn.) Scop.; Bermuda grass, *Cynodon dactylon* (Linn.) Pers.; *Desmodium* sp.; and in places the cud weed, *Gnaphalium polycephalum* Michx.; *Gnaphalium purpureum* Linn.; squaw weed, *Senecio smallii* Britton; ox eye daisy, *Chrysanthemum leucanthemum* Linn.; wild toad flax, *Linaria cana-*

dense Mill.; sheep sorrel, *Rumex acetosella* Linn.; wild potato, *Ipomoea pandurata* Meyer; horse nettle, *Solanum carolinense* Linn.; mullein, *Verbascum thapsus* Linn.; button weed, *Diodia teres* Walt.; five finger, *Potentilla canadense* Linn.; wild strawberry, *Fragaria virginiana* Duschesne; bluets, *Houstonia minima* Beck.; *Ceanothus americanus* Linn.

Along the edge of the cultivated fields, fence rows, ditch banks and other waste places where there is a greater percentage of humidity one finds species of *Alsine*, mouse ear, *Cerastium viscosum* Linn.; pepper grass, *Lepidium virginicum* Linn.; shepard's purse, *Capsella bursa-pastoris* Moench.; cranesbill, *Geranium carolinianum* Linn.; Johnson grass, *Sorghum halapense* (Linn.) Pers.; dead nettle, *Lamium amplexicaule* Linn.; *Lamium purpureum* Linn.; vetch, *Vicia sativa* Linn.; may pop, *Passiflora incarnata* Linn.; carpet weed, *Molluga verticillata* Linn.; *Chaerophyllum procumbens* (Linn.) Crantz.; button weed, *Diodia virginiana* Linn.; golden rod, *Solidago* sp.; Virginia creeper, *Ampelopsis quinquefolia* Michx.; ragweed, *Ambrosia artemisiifolia* Linn.; dandelion, *Taraxicum officinale* Weber; Venus' looking glass, *Specularia perfoliata* DeC.; and *Specularia biflora* (R & P) Fisch & Mey.; morning glory, *Ipomoea purpurea* Lam.; trumpet vine, *Tecoma radicans* Juss.; *Sabbatia angularis* Pursh; English plantain, *Plantago lanceolata* Linn.; common plantain, *Plantago major* Linn.; *Plantago virginica* Linn.; *Plantago aristata* Michx.; poke-weed, *Phytolacca decandra* Linn.; *Croton glandulosa* Linn.; poison oak, *Rhus toxicodendron* Linn.; leather flower, *Clematis viorna* Linn.; corn cockle, *Lychnis githago* Lam.; catch fly, *Silene antirrhina* Linn.; red clover, *Trifolium pratense* Linn.; buffalo clover, *T. reflexum* Linn.; *Penstemon laevigatus* Soland.

In the open low grounds near the streams one finds some of the plants in the above paragraph and also the touch-me-not, *Impatiens fulva*, Nutt.; common iron weed, *Vernonia noveboracensis*, Willd.; great ragweed, *Ambrosia trifida* Linn.; cocklebur, *Xanthium canadense* Mill.; cardinal flower, *Lobelia cardinalis* Linn.; blue lobelia, *Lobelia puberula* Michx.; joint weed, *Polygonum mihlenbergia* Watson.; elder, *Sambucus canadensis* Linn.; button bush, *Cephalanthus occidentalis* Linn.; aster, *Aster puniceus* Linn.; cat-tail, *Typha latifolia* Linn.

A. BALLARD MASSEY.

Botanical Laboratory, Clemson College.

NATURAL HISTORY SOCIETY

The regular Thanksgiving day field trip of the Society will consist of a visit to the Legare Plantation on the Ashley River. The launch Relief, which was used last year has been engaged to take the party up the river. The expedition will start at nine o'clock from Chisolm's Mill. Tickets for the trip are now on sale at the Museum, and should be bought as early as possible, for if it becomes necessary to limit the number of members attending, as now seems likely, preference will be given to those who first secure tickets. The price of tickets is thirty cents each.

The regular monthly meetings of the Natural History Society were held on the first and second Thursdays in November. The general officers of the Society were all re-elected for the ensuing year. The report of the treasurer showed a substantial balance on hand after expending \$51.11 for insect-proof specimen cases. The elections of special officers for section B took place on Thursday, November 14, when Allan McDermid was elected Vice-President and Donald Sams Secretary. The membership of the Society has increased to one hundred and thirty, the largest growth of any year in its history.

At the meeting of Section A the speakers were Mr. Ellison A. Williams, who gave a most interesting account of his observations of European birds, made on a trip taken during the past summer, and Mr. Francis M. Weston, Jr., who described the variety of bird-life found in the North Carolina mountains.

PUBLIC LECTURES ON HEREDITY

The Museum announces a course of six lectures on heredity and kindred problems, to be given by Professor Rea, on Monday evenings in December and January. The six dates selected are December 9, 16, 30, and January 6, 13, 20. These lectures will form a natural continuation of the course on evolution given at the Museum several years ago, although a knowledge of the pre-

vious course is not necessary to an understanding of the work on heredity. The lectures will include an account of the principles of inheritance recently established, and their relation not only to biological evolution, but also to many social problems. The price of tickets for the course of six lectures is two dollars. Members of the Natural History Society may obtain special tickets at half price. Members of the Museum may obtain tickets for themselves and their families free on application.

NEW CLASS IN BOTANY

At the request of several members of the Natural History Society a botany class has been formed under Miss Bragg's direction for the study of plant analysis. The class already has a large membership, its total enrollment being twenty-one. It will meet throughout the winter at five o'clock on the first and third Mondays of each month.

The special purpose of the class is to study the flora of this region, and the flowering plants about Charleston in particular. It is hoped that by the beginning of next summer members will be able, by consulting their botanies, to readily determine the name and habits of any wild flower which they may come across.

The text-book used is Gray's Manual of Botany, seventh edition. Small's Flora of the Southeastern United States will be used as a reference work. The Museum herbarium will be the subject for study before the wild flowers have made their appearance, but whenever possible the work will be illustrated by field trips for the study of plants in their natural habitat. Miss Bragg will conduct such an expedition on Thanksgiving day during the regular trip of the Natural History Society.

NOTES FROM THE MUSEUM

The Museum is open free to the public on week days from 10 to 6. Children unaccompanied by an adult are admitted only on Saturdays.

Since September the *News and Courier* has been devoting a column in its Monday morning issue to News Notes From the Museum. This affords a convenient means of keeping the public in touch with new work and has been favorably commented on by many of our friends.

Mr. E. R. Memminger, honorary curator of fungi, has returned to the city and plans to continue his work on the herbarium during the winter. Professor D. S. Martin, honorary curator of geology, has been working at the Brooklyn Institute of Arts and Sciences during the summer and expects to return to Charleston in December to take up his winter work.

The October number of the *Auk* contains a note by Julian Mitchell, Jr. of the Natural History Society regarding the first specimen of the pigeon hawk taken in South Carolina in the winter.

Mollie, the pet member of the Museum's collection of living snakes acquired considerable notoriety by escaping from a member of the staff who was exercising her on the front lawn. Mollie is a six-foot pine snake from Florida, presented to the Museum in April, 1908, by Mr. Henry P. Williams. The beauty of her coloring and the gentleness of her disposition have made her a favorite with our visitors, and her good health during the past four years may be attributed largely to the fact that she has been taken out occasionally for a run in the grass in the early morning dew. There was much delight when she reappeared after an absence of five days.

The Natural History Society has devoted special attention this fall to a study of local moths and butterflies, and some of the

members have made very interesting collections of their own which have been brought to the Museum for identification.

The Arctic motion pictures taken by the Carnegie Museum Alaskan-Siberian expedition were recently shown in Charleston and gave an unusual opportunity to observe the habits of the polar bear, walrus, Steller's sea-lion, seal and other Arctic animals. Nearly all of the species appearing in the pictures are represented by specimens in the Museum.

During the summer two fire extinguishers were put in the Museum as the gift of Mr. Henry P. Williams of the Board of Fire Masters. These safeguards against fire have long been needed, and may sometime be the means of preventing serious loss.

A new roof has been put over the laboratory, where the leaks have been so bad during the fall that classes have had to be suspended in rainy weather. It will soon be necessary to renew the roof over the library and storage collections. The roof of the building was in bad condition when the Museum obtained possession, and has been patched until it can no longer be kept even approximately tight. The maintenance appropriation of the Museum is not sufficient to cover these roof repairs in addition to the regular expenses of maintenance and funds for this purpose have necessarily been taken from the General Account which is usually applied to permanent improvements only.

The Charleston Museum

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

WHAT THE MUSEUM OFFERS THE SCHOOLS

Volume VIII, Number 8

DECEMBER, 1912

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZÏCK.....*Conchology*

DANIEL S. MARTIN.....*Geology*

ARTHUR T. WAYNE.....*Ornithology*

NATHANIEL W. STEPHENSON.....*Art*

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Curator of Books and Public Instruction

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PATRONS.....\$ 500

SUSTAINING MEMBERS.... 25

BENEFACTORS..... 1000

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 8 CHARLESTON, S. C., DECEMBER, 1912 No. 8

WHAT THE MUSEUM OFFERS THE SCHOOLS

In an address delivered before the Charleston County Teachers Association in 1907¹ Mrs. Paul M. Rea presented an outline of what the Charleston Museum then postulated as its ideal of the relations which should exist between it and the schools of Charleston County. It is the purpose of this paper to show what progress has been made toward the realization of this ideal, and in what measure the ideal itself has broadened. Harold Francis Dike has said that "the realization of an ideal is death." May the Museum ever realize its ideals only to find them but the path-makers for higher ideals of service.

Mrs. Rea, in her address, considers not the ideal relations of an ideal museum to an ideal public school system, but a concrete ideal for the relation of the Charleston Museum to the schools of Charleston County. Let us briefly review the means suggested for the attainment of this relation.

First Mrs. Rea discusses the educational value, for school purposes as well as for the public, of a general museum collection so exhibited that each specimen is attractively presented, descriptively labelled, and, whenever feasible, placed among its natural surroundings. She further points out the advantages of such an exhibition over the old museum type where a stuffed

¹ BULL. CHAS. MUS. III, 1907, 21-29.

specimen with a scientific label was considered all sufficient. And so it may have been for the scientific but not for the modern educator. Writing several years before the transfer of the Charleston Museum from the College of Charleston to its spacious new home on Rutledge Avenue, Mrs. Rea says:

No museum in the country will ever dare to announce that its exhibition collections realize their educational ideal. Therefore, when our new building is opened to the public, let it not be understood that the collections are at once in a condition to meet the needs of the public and the schools. It is hoped, however, that a *start* will have been made in that direction to be prosecuted as far and as fast as the funds of the Museum and the size of the staff will allow.

Today we can say that a start has indeed been made and, though hampered by a lack of funds which will necessarily render the ideal installation of even the present collections a matter of years, nevertheless, the Museum collections now on exhibit afford greater facility for educational work with the schools than ever before in the one hundred and thirty-nine years of the Museum's history.

Turning from the general subject of Museum exhibits which are only indirectly prepared for the benefit of the schools, Mrs. Rea enumerates various ways in which the Museum should strive directly to assist the schools; namely, by furnishing:

1. A guide to the Museum collections.
2. A demonstrator or lecturer for classes visiting the Museum.
3. Free lecture courses, illustrative of studies pursued in the schools.
4. The use of a lecture room and specimens for teachers visiting the Museum with classes.
5. Special exhibits at the Museum.
6. A Museum library with books helpful to both teachers and children.
7. Field trips conducted by a member of the Museum staff.
8. A series of small loan exhibits.
9. A special instructor in charge of the loan exhibits who shall conduct classes for either teachers or children.
10. Publication of Bulletins announcing matters of interest to the schools.

Such is the ideal.

Mrs. Rea's paper closes with a statement of what small part of its ideal the Museum was at that date, March, 1907, in position to realize. Concretely this resolves itself into:

1. A guide to the Museum collections.
2. A demonstrator or lecturer for classes visiting the Museum.
3. The use of a lecture room and specimens for teachers visiting the Museum with classes.
4. Free lecture courses if time and money be available at the desired time.
5. Opportunity for field work given through the medium of the Natural History Society, the meetings of which were open to the public but the trips available only to paid-up members.
6. The use of the Museum reference library then numbering but a few hundred volumes and not provided with a reading room.

Five years ago the Museum gladly offered what it could. Let us now see what enlargement of its powers of usefulness the intervening years have brought.

For the year 1913, the Charleston Museum announces that it is prepared to co-operate with the schools of Charleston County, public and private, by furnishing the following means of assistance along the lines of natural history and allied subjects:

1. A guide to the general collections, for classes visiting the Museum. *Requests should be made two days in advance.*
2. A lecturer to give short talks upon particular exhibits in the general collection to classes visiting the Museum. *Requests should be made two days in advance.*
3. Special lectures illustrative of subjects pursued in the schools, to be given at the Museum to classes upon the request of any teacher. *Requests should be made one week in advance.*
4. The use of a lecture room and specimens from the Museum collections, for teachers with classes; a demonstrator to be furnished if desired. *Requests should be made two days in advance.*

5. Special exhibits of educational value to be held at irregular intervals.
6. A commodious and attractive reading room, supplied with popular nature study literature adapted to the needs of both teachers and pupils, under the charge of a trained librarian. The Museum library of about 4,000 volumes is mainly for reference use; by application, however, to the curator of books arrangements may be made whereby teachers may borrow books needed for their nature study work.
7. Copies of the Charleston Nature Study Course, to be furnished to teachers on request. The Museum's curator of public instruction, in co-operation with the supervisor of primary work in the public schools of Charleston, is preparing a series of nature study courses adapted to the needs of the first three grades of the Charleston schools. The first grade course is completed and has formed a part of the curriculum of the first grade since September, 1912. It is to be used by the second and possibly the third grade for the remainder of the current school year, after which the second year course will be introduced.
8. Monthly lectures delivered by the curator of public instruction to primary school teachers in preparation for the nature study work of the following month as outlined in the Charleston Nature Study Course. Open to all primary teachers in public or private schools. Dates to be announced.
9. Monthly field trips for primary teachers attending the nature study preparatory lectures. Dates to be announced.
10. Access for teachers to the Museum herbarium, now containing specimens of about 1,000 species representative of the local flora, with assistance in the identification of South Carolina plants.
11. Travelling school exhibits. These are designed for use with the Charleston Nature Study Course and will furnish such illustrative material as is not easily to be obtained by the individual teacher. The number of exhibits will be increased month by month to meet the requirements of the work. Each exhibit is packed in

an attractive portable case. Public school teachers should make application for these exhibits through Miss Sara W. Reicke, supervisor of primary work in the Charleston public schools; applications by other teachers should be made directly to Miss Bragg, curator of public instruction, at the Museum. Preference as to time will be given teachers using the Charleston Nature Study Course but all requests will be filled at the earliest date possible.

The 25 exhibits listed below are now available. Each animal exhibit consists, unless otherwise stated, of one mounted specimen.

Southern fox squirrel. Exhibit No. 22.

Brown rat. Exhibit No. 18.

Lion cub. Exhibit No. 21.

Red bat (female and three young). Exhibit No. 20.

Hoary bat. Exhibit No. 19.

Cardinal or Redbird. Male and female. Exhibit No. 16.

Red-winged blackbird. Male and female. Exhibit No. 10.

Red-winged blackbird. Male and female. Exhibit No. 13.

Mockingbird. Exhibit No. 7.

Mockingbird. Exhibit No. 15.

Meadowlark. Exhibit No. 14.

Meadowlark. Exhibit No. 17.

Bluebird. Male and female. Exhibit No. 8.

Bluebird. Male and female. Exhibit No. 9.

Painted bunting or Nonpareil. Male and female. Exhibit No. 11.

Painted bunting or Nonpareil. Male and female. Exhibit No. 12.

Beach specimens, showing types of the animal and plant life of the Isle of Palms. Exhibits Nos. 24 and 25.

Picture exhibits, Nos. 1-6. A large envelope containing mounted pictures designed to supplement the specimen exhibits has been deposited for the current year in each of the six public schools of Charleston in which there are primary grades. At present each envelope contains 23 pictures which

are duplicated in the other envelopes, and also eleven pictures peculiar to that envelope, making a total of 204 pictures comprising 89 subjects. Each envelope further contains four blue prints illustrating the foliage of trees studied during the autumn months.

Iron and steel production. Exhibit No. 23. This excellent exhibit was prepared several years ago and has been used by pupils in the higher grades and preparatory schools. It illustrates with specimens, diagrams and photographs various processes in the manufacture of iron and steel, showing each stage from the mine to the finished product.

12. Printed lists of exhibits and other matters of interest to teachers will be distributed from time to time. Announcements of lectures, field trips, and special exhibits will be made in the BULLETIN OF THE CHARLESTON MUSEUM and in the columns of the daily papers.

A comparison of what the Museum has to offer in 1913 with what it was able to offer in 1907 leaves no room to doubt the great advance which has been made. Not merely has the number of lines of usefulness increased; greater efficiency along all lines has become possible, owing to the improved working facilities of the new building, the organization of the school work under one department and the hearty co-operation of the schools themselves. None of the work to be done this coming year is new, but rather the natural development of the past year's effort. Additional travelling exhibits accompanying the extension of the Charleston Nature Study Course and the systematizing of irregular lines of work mark the step from 1912 to 1913. Classes, lectures, field trips, all have had their place in 1912. The work of 1913 will be to reach the large numbers who are just coming to realize the advantages which accrue to them through co-operation with the Museum. The schools are now seeking Museum aid where formerly all too frequently the Museum had to solicit the opportunity to be useful.

So much for the realities of present and past. In conclusion let us go back to the ideal of 1907. A comparison of the points Mrs.

Rea makes with the accomplishment of today shows that work has been developed along all the lines marked out, we do not claim in an ideal way, but surely in such a manner as will lead to unlimited usefulness. One step beyond the ideal we find in the Charleston Nature Study Course and all that it implies.

No book has yet been written on nature study which is adapted to the use of schools in the southern states. Mr. W. K. Tate offers excellent suggestions in his *Teacher's Manual for the Elementary Schools of South Carolina*, but the only books giving graded courses are written to meet northern climatic conditions. A nature study course which heralds the bluebird as typifying the return of spring needs modification before being used in a land blessed with a wealth of bluebirds throughout the year. When the public primary schools of Charleston were placed under a primary supervisor last January the first step was taken toward the introduction of nature study as a legitimate part of school work. Numerous nature courses were studied and Frederick L. Holtz's *Nature-study* was adopted as a basis. The Charleston Nature Study Course is a modification of Holtz's courses for the grades, modified to fit floral and faunal conditions in the vicinity of Charleston and certain particular requirements of the Charleston schools. The simplest and most easily secured natural subjects have been chosen for the lower grades. No teacher need lack for material. What cannot be procured readily is supplied through the specimen and picture exhibits lent by the Museum.

In the lower grades no period is required for the nature study lessons, the object being to correlate with the reading, language, or drawing lesson, or with the morning exercises. So far as possible the course follows the sequence of concrete ideas in the New Education Readers used in the primary grades. Here the *rat* becomes early a center of interest, followed in due course by the *cat* and the *bat*. The introduction of the word *rat* is made the occasion for some enlargement upon what would with any careful teacher be an endeavor to present a clear mental picture of

the meaning of the word. The Museum *rat exhibit* is presented, conspicuous characteristic of the rat are brought out by observation and its habits discussed. The cat and the bat are similarly treated. In case of the *cat* a Museum specimen is not necessary, a living cat being preferable by far. Here pictures from the Museum exhibits help to give the child an idea of the large family to which the cat belongs, establishing for the lion and tiger of his story books a definite relationship with the household pet. A baby lion cub, one of the Museum exhibits, has proved most successful in this respect. Many of the pictures in the Museum exhibits are known as story pictures. These are used to emphasize the human relation and to develop the child's imagination, as well as to familiarize him with the work of good artists. As one animal after another is taken up similarities and differences are pointed out. It must be confessed that the one conspicuous flaw in the practical working of the course so far has been the rat. Many teachers apparently skipped the rat page of their readers, at least it might so be inferred from the few who made application for the Museum's attractive exhibit. Birds, butterflies, flowers, fruits, all are taken up in somewhat the fashion pointed out or are separately introduced for material for drawing or language lessons.

Careful study is being made of the working of the course this year. Another year a revision will be made. Ultimately, after revision based on experience, courses for all primary grades will be published. A teacher's manual is being prepared to serve as a guide to the courses.

But publication of courses and teacher's manuals belong to the Museum's unrealized new ideal for the future. The ideal is growing. Looking ahead it shows us nature study taught and well taught in every school and grade in Charleston, nay more, in the county, and even throughout the entire state; and leading the way everywhere we see the travelling exhibits of the Charleston Museum.

LAURA M. BRAGG.

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REPORT OF THE DIRECTOR OF THE MUSEUM
FOR THE YEAR 1912.

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LIBRARY
NEW YORK
BOTANICAL
GARDEN

VOL. 9 CHARLESTON, S. C., JANUARY, 1913 No. 1

REPORT OF THE DIRECTOR OF THE MUSEUM FOR THE YEAR 1912

The director of the Charleston Museum has the honor to submit the following report for the year 1912.

A large and gratifying increase in the membership of the Museum, from which the funds are derived for all permanent improvements, and a marked extension of the educational work with schools are the most prominent features of the past year's work. These are natural results of the transition from the period of reorganization of the Museum and preparation of the new building and equipment to the period of active use of the Museum for the instruction and entertainment of the people. This transition has been delayed by the slowness with which funds have become available, but the organization and equipment which have been attained fit the Museum for a far more active and valuable role than it has ever filled in the life of the community. The extension of organized educational work is but a part of this program of usefulness. The increased membership is an evidence of the appreciation which a continuation of this program may be expected to arouse.

FINANCES

The City appropriation for the maintenance expenses of the Museum was \$4000, the same amount as in 1911. Of this sum \$3112.50 was expended for the salaries of the director, curator of books and public instruction, secretary to the director, assistant in the library, janitor, and three months services of the curator of the geological department. The remaining \$1201 was applied to the maintenance of the various departments in nearly the same proportion as in 1911. It is extremely difficult to carry on the work of the Museum with so small a staff and many very desirable lines of work cannot be undertaken, yet very real progress has been made in almost every department. Too much cannot be said in appreciation of the co-operation and financial support given by City Council to the re-organization of the Museum thus making possible the perpetuation of the oldest American museum and giving to the community a public institution of recreation and instruction and to the schools facilities which few cities possess.

The General Account, which includes the contributions of members and other funds available for general purposes, has received this year, \$1152 from 54 members and \$216 from rents. The number of members is increased by 42 over last year and is nearly double the largest number of any previous year. A list of the members is appended to this report. There are included two members who contributed for the year 1912 since the books were closed.

Special accounts for the year include the money derived from the College of Charleston for the maintenance of its department of biology and geology and from the Medical College of South Carolina for the maintenance of its department of embryology and physiology. Both of these colleges are affiliated with the Museum and the work of the departments mentioned is conducted in the Museum laboratory and classroom.

The Charleston Natural History Society, organized under the auspices of the Museum, has received \$118.25 in 1912 as against

\$101.10 in 1911. The income of the Society is devoted to the maintenance of its educational work as a part of the department of public instruction and the surplus is applied to the general work of the Museum.

A fund of \$51 has been obtained for the planting of the Secessionville Heronry, \$50 of this amount being contributed by the National Association of Audubon Societies.

ADMINISTRATION

The general plan of administration, which was put into operation in 1910 and 1911, has been carried through the past year with most satisfactory results. Departments are co-ordinated so as to secure maximum efficiency with a small staff, and the system of accounts is such that the actual cost of every piece of shop work and a classified list of all expenditures appear in the annual summary.

To acquaint the public with the progress in equipment and installation and with the general activities of the Museum, the evenings of February 20 and 26 were devoted to conducting a series of parties, numbering about twenty persons each, through the offices, library, study and storage collections, carpenter and printing shops, laboratories and lecture rooms, and the main exhibition hall. Each of these departments was in full operation and members of the staff and a number of volunteer assistants demonstrated their work. Many of our visitors said that these occasions were a revelation to them of the scope of our work, and many evidences of increased public appreciation have been noted. It is desirable to repeat these exhibitions during the coming year.

Miss Laura L. Weeks, secretary to the director, resigned in April on account of illness. Her work was taken temporarily by Miss Amy Woods and in September Miss Rena Rowell was appointed to the position.

Mr. L. Wm. McGrath was advanced in September from assistant in zoology to instructor in physiology and zoology. There has been no other change in the staff.

The director represented the Museum at the seventh annual meeting of the American Association of Museums held in New York City, June 4-7, when he was honored by re-election as secretary of the Association.

BUILDING

The most serious problem confronting the Museum at present is the condition of the roof. The relation of the roof to the gutters presents a grave fault in that the gutters, which form the cornice as well, partly rest upon the brick wall. In order to preserve the lines of the cornice they have no fall. This in turn causes them to rust out and allows the water from the roof to soak into the wall, disintegrating the mortar and staining the plaster both outside and inside and ultimately causing it to fall. The greater part of the plaster along the galleries has already fallen, and the exterior of the building, which was put in excellent order and painted in 1909, is now badly disfigured.

The roof as a whole was in bad condition when the Museum acquired the building in 1907. It was repaired and painted as well as possible as a part of the general remodeling. The amounts expended for roof repairs since then are as follows: 1908, \$324.99; 1909, \$45.94; 1910, \$38; 1911, \$29.45; 1912, \$91.95: Total, \$530.33. These repairs have proved entirely futile. The same leaks continue and new ones appear. Interior plastering, woodwork, floors, etc., suffer from every rain, and the structural integrity of the building is seriously endangered. Cases, specimens, books, and equipment are all deteriorating in spite of utmost care in trying to arrange furnishings where water does not drip.

Realizing the futility of attempting to make further repairs to the present tin roof, a plastic tile roof was put over the laboratory in November at a cost of \$54.21. This is less than half the cost of a good quality of tin. The material is guaranteed for seven years by a responsible local firm, and requires no paint. This roofing can also be carried over the edge of the cornices and

thus protect the walls from further water damage. The cost of removing the present tin roof from the whole building, repairing sheathing, etc., laying plastic tile, and repairing guttering is estimated at \$4300. The cost of this work with a good quality of tin roofing is about \$7536. It is imperative that this work be undertaken immediately.

The Museum is without funds to pay for a new roof. The maintenance expenses already exceed the City appropriation by \$313.50, in spite of the most rigid economy. Minor repairs are regularly charged to this account, but it cannot be expected that the efficiency of the Museum can be maintained, or even that it can be kept open, and at the same time pay for a new roof. The general account is at best inadequate to keep the shops running and make the progress in installation necessary to protect specimens and sustain public interest. Only by a special appropriation for the roof can the structural integrity of the building be preserved and the activity of the Museum be maintained.

Since the defects in the roof are either inherent or had developed prior to the acquisition of the building by the Museum, the cost of the new roof should be considered as properly a part of the general remodeling and repairs for which City Council made its original appropriation in 1907, with supplementary appropriations in 1908 and 1909. In 1911 Council also made a special appropriation to cover storm damages. These appropriations indicate the readiness with which the City has always supported the Museum, both for general maintenance expense, and for special needs. This procedure is also in accord with the relation of many of the most important and successful museums to their municipalities. This relation is briefly as follows: the City provides the land, erects and maintains the buildings, and defrays the running expenses; the museum authorities provide and increase the collections and defray the cost of scientific expeditions and publications.

Improvements to the building during the year include the addition of another window in the carpenter shop to secure more

light on the bench; the erection of a partition to separate the shop from the rear hall; the enclosure of a part of the shop and installation of a stove so that it can be heated, and electric wiring for lighting; the installation of a stove in the large lecture hall; and a gate to close the rear entrance when the doors are open. The carpenter has hitherto lacked adequate facilities for his work and had no protection from cold. These improvements were made at small expense and put the shop in excellent order.

COLLECTIONS AND INSTALLATION

As stated in the last report, it is the policy of the Museum to defer any general increase in the collections by purchase until the material now in hand is properly installed. Only \$30.80 was expended for new specimens in 1912 and practically all of this was for birds for traveling school exhibits. Twenty-three such exhibits have been prepared, with suitable cases for easy transportation.

Considerable progress in installation has been possible in spite of the small amount of money available. The baleen whale, taken in Charleston Harbor in 1880 and long a familiar object in the old Museum, was installed in the main hall early in the year.

The second long floor case of the type designed to separate alcoves, which was built in 1911, was completed and installed early in 1912. This made possible a re-arrangement of the exhibit of birds of South Carolina to avoid crowding and to allow the addition of a considerable number of specimens. It is hoped that new labels for this exhibit may be printed in the coming year.

Seven cases from the old building were brought over and re-finished. These provide for the tarpon and two groups of monkeys, for two groups of squirrels with descriptive labels; for a series of arms and ethnological specimens; and for a permanent exhibit of silk culture with a full set of descriptive labels. Two cases were given by Mr. Steven Thomas. One of these was re-finished and used for a large Indian pot and bowl lent by Mr. George Witte, of Philadelphia. The other is used for storage

purposes. Three large cases were brought over from the old building, mounted on castors, and used without refinishing for temporary storage of a zebra, llama, alpaca, moose, several bears, and two camels. Sash from other old cases was used to form temporary enclosures for the walrus, Steller's sea lion, and a number of seals. It is gratifying to have these large mammals in the main hall and the old cases, with many small lights of glass; form a marked contrast with the new plate glass cases containing the bison and the elk groups. It is to be hoped that some of these large animals may be installed in new cases in the coming year.

Dr. Martin, honorary curator in the geological department, spent two months and a half cataloging and arranging fossils and minerals mostly donated by himself. A most important addition to the geological collections is the extensive series of South Carolina fossils collected by Mr. Earl Sloan, formerly state geologist, and deposited by him in the Museum. It is hoped that a more extended account of this very valuable collection may be printed at an early date.

In order to put on exhibition a series of geological specimens needed for class work, nine rough table cases of a purely temporary character were built in the spring.

A beginning has been made in installing a general mineral exhibit with descriptive labels. A forest floor has been added to the elk case, and a nest and eggs to the snowy heron case. The exhibit of nests and eggs of native birds had been enlarged and re-arranged.

A number of metal storage cases for birds and a stock of glass vials and corks have been bought for the Museum by the Natural History Society. One of the large storage cases has been fitted with glass doors. These are important improvements in the facilities for caring for study and reserve material.

Gifts to the Museum during the year have been many and valuable and are deeply appreciated. Lack of space, however, forbids their specific acknowledgement.

LIBRARY

The routine work of the library has always been difficult of accomplishment because of continual demands upon the staff for special work and for service in other departments. During the past year, however, marked progress has been made in cataloging. There have been filed 800 new cards and 500 more are ready to be typewritten. About three hundred volumes and several hundred pamphlets remain to be cataloged. This work should be accomplished in 1913, bringing the catalog up to date. A large amount of analysis of publications of learned societies will still have to be done to make all the material accessible.

A stock of single and multiple pamphlet binders was purchased in October. With these 166 volumes have been bound by the janitor. About 500 volumes are ready for binding in 1913. Owing to the necessity of concentrating permanent improvements chiefly upon the department of installation, very few new books have been added to the library by purchase. It is hoped that this defect may be corrected in the near future.

Government documents related to the work of the Museum have been deposited in the library by the College of Charleston as usual. The accessibility and good order of these documents is much to be commended, and their use is growing constantly. The latest document catalogs are kept at hand and cards are inserted in the regular catalog for papers of special importance.

BIOLOGICAL SURVEY

The importance of having in the Museum easily accessible data regarding the seasonal and geographical occurrence of animals and plants in South Carolina is especially great because of the paucity of published works on this subject. The excellent papers of the earlier investigators relate usually to restricted areas and little has been published recently. To meet this deficiency all properly authenticated records of local fauna and flora that come to the attention of the Museum are entered in a card catalog.

The progress of the survey would be much more rapid if it were possible to undertake even a little systematic collecting, but nearly all of the work has had to be incidental to field trips devoted primarily to instruction.

The bird records of the survey now contain the latest information available anywhere on this subject. The February and March issues of the Bulletin contained a summary of the birds recorded for 1910 and 1911. This serves as a supplement to Wayne's Birds of South Carolina¹, and adds one new species (Wilson's Phalarope) to the avifauna of the state, removes two and perhaps three species from the hypothetical list to the authenticated list, gives much new information regarding occurrence, and greatly extends the localities covered by the survey, especially in the interior of the state. These records include those made by Mr. Wayne since the publication of his book, as well as those of all other observers accepted by the Museum. Since the publication of this supplement one species previously hypothetical has been given an authentic status and numerous rare records obtained.

The collection of bird nests and eggs of the state has been considerably augmented during the year.

A large number of spiders and miscellaneous insects have been collected but not all identified. An effort is being made to gather a representative series of spiders, but no general collection of insects can be attempted without an entomologist on the staff.

The collection of living snakes has been continued and has contained two species of burrowing snakes new to the survey, the Rainbow Snake (*Abastor erythrogramus*) and the Red-bellied Snake (*Forancia abacura*).

In July and August Miss Bragg collected plants at Sumter, in the region about Keowee, and at Cæsar's Head. When the material obtained in this way has been worked up it may be expected to yield results of importance for the survey. Miss Bragg also visited a number of colleges which possess herbaria, and arranged

¹CONTR. CHAS. MUS., 1, 1010.

plans for co-operation in extending the records of the flora of the state.

Mr. Memminger has continued his revision of the nomenclature of the Ravenel herbarium and has written survey cards for a large number of species. It is intended to include in the records of the survey all specimens from South Carolina in our own collection or known to be in other collections, all properly established records for species observed but not preserved, and all published references to local fauna and flora. To facilitate these entries, a stock of publication record forms has been printed and a start has been made in filling these in for some of the early floral lists, such as Bachman's catalog of the plants of Charleston. Several months could profitably be devoted to this work, and in time these records will become of the highest importance.

BIRD CONSERVATION

The Museum has been interested for some years in two small islands near Charleston on which the rare Snowy Heron and several other more common species of herons breed in abundance. One of these islands was leased by the Museum after it had been raided by plume hunters. The birds deserted the breeding ground but it is hoped that they will return next spring. The other island could not be obtained at that time and during the past year the owner cleared it of bushes and attempted to plant it to hay. This wanton destruction of the heronry so aroused public sentiment that, under the leadership of the *The News and Courier*, the island was purchased by popular subscription. The Museum was asked to take title to the property as the natural agent of the community. A further fund was necessary to replant the island with suitable bushes and the National Association of Audubon Societies generously contributed fifty dollars for this purpose. The island is expected to be in favorable condition when the birds return in the spring and it is ardently to be hoped that one or both of these heronries may be re-established and aid in restoring something of the former abundance of these beautiful birds.

PUBLICATION

The eighth volume of the BULLETIN, comprising seventy-four pages, has been completed in 1912. The total cost of this volume for printing, envelopes, postage, etc. is \$257.08, as against \$209.06 for 1911, and \$171.17 in 1910. There has been very little variation in the number of copies printed. The higher cost at present is due to increase in printing expense. The value of the BULLETIN, however, as a record of progress and as a means of keeping in touch with the people of Charleston and with museums abroad is great and it must be considered a very necessary and important part of the work of the Museum.

Among the longer articles printed during the year mention may be made of the annual report of the director, a summary of recent bird records of the biological survey, a report of progress in the organization of the herbaria, notes on botanical field work, the announcement of the purchase of the Secessionville heronry in the name of the Museum, and a paper by Mr. A. B. Massey on the flora about Clemson College.

The series of research publications entitled CONTRIBUTIONS FROM THE CHARLESTON MUSEUM is designed as a medium for publication of the results of the biological survey and for other investigations pertaining to the field of the Museum. The first volume of this series, Wayne's Birds of South Carolina, has set a high standard, and other volumes in preparation or contemplated should make the series as a whole reflect much credit upon the Museum. These publications are the chief basis of the exchanges by which the library receives some of its most important accessions and they are, therefore, an essential feature of our work. It is important that the second number of the series, Mazyck's Mollusca of South Carolina, should be published early in the coming year. The Manuscript is now ready for the printers.

The cost of the CONTRIBUTIONS is charged to the general account, since it is the policy of the director to defray the expense

of all research as well as all permanent improvements, from this account, in order that the City appropriation may be devoted to the maintenance of the Museum and its utilization for the recreation and instruction of the people.

A paper on the Functions of Museums was read by the director at the meeting of the American Association of Museums in June and was published in the Proceedings of the Association. A paper on the classification of books on fine arts, by Miss Bragg, was also published in the Proceedings of the American Association of Museums. A note on the Pigeon Hawk in South Carolina in winter, by Mr. Julian Mitchell, Jr., a member of the Natural History Society, was published in the *Auk*.

Grateful acknowledgement is due *The News and Courier* and the *Evening Post* for cordial editorial support and for the freedom with which their columns have been opened to notices of Museum activities. Since September *The News and Courier* has printed a weekly column of news notes from the Museum, written by Miss Bragg.

PUBLIC INSTRUCTION

The most important new activity in this department is a closer affiliation between the public schools and the Museum, by which the travelling exhibits of the Museum are used as an integral part of the nature study course. Twenty-three exhibits have been prepared by the Museum for this work, and more will be added during the coming year. An interesting account of these exhibits and their use is contained in the December issue of the BULLETIN, under the title: What the Museum Offers the Schools. In this paper Miss Bragg shows that this co-operation between the Museum and the schools realizes the essential features of the program which was outlined by Mrs. Rea in 1907, when the reorganization of the Museum was just beginning. Too much importance can hardly be attached to this feature of the Museum as a public servant.

The Natural History Society, which is one of the chief activi-

ties of the department of public instruction, has had a most successful year. The membership has increased to more than one hundred and thirty paid-up members—a marked contrast to the little group of a dozen or fifteen members of which it was composed a few years ago. The work of the Museum through this society may fairly be credited with having developed in the community a very real interest in natural science. The Museum, in turn, has received important assistance from the Society in the prosecution of the biological survey, in the preparation of specimens, and in the purchase of equipment. The Society comprises two sections: one for adults and one for children. The younger section has always included some of the most earnest and active members.

At the monthly meetings of section A the director has given a series of informal talks on invertebrate and vertebrate animals, Dr. Burt G. Wilder spoke on the silk spider of South Carolina, and Messrs. F. M. Weston, Jr. and Ellison A. Williams have spoken on birds. In the early fall Miss Bragg lead a special study of common butterflies and moths, participated in by both sections. Section B has made a special study of birds. The meetings of both sections have been supplemented by a series of field trips conducted by Miss Bragg. The Society has purchased metal cases for the preservation of bird skins and insect collections. Members have mounted a large number of herbarium specimens, prepared many bird skins, and assisted Miss Bragg in arranging exhibits.

In October a class in botany was organized by the curator among the members of section A. This course is designed to acquaint the members with the local flora and with methods of plant analysis. The class consists of twenty members.

Evening lectures, which have necessarily been omitted while the Museum has been in process of transfer from the old building, were resumed in December, when the director began a course of six lectures on Heredity and Kindred Problems. It is hoped that such lectures may be given each year and that they may in

time develop an interest similar to that aroused by the Natural History Society. It is unfortunate that Charleston is so far removed from centers of scientific activity that it is seldom possible to obtain out-of-town lecturers.

AFFILIATED INSTITUTIONS

The classroom, laboratory, and collections have continued to be used by the department of biology and geology of the College of Charleston and by the department of embryology and physiology of the Medical College of South Carolina. A new laboratory course in physiology was introduced in the fall and in this connection the Medical College has supplied new apparatus and equipment.

From January to June a class in botany came to the Museum from Ashley Hall for instruction by Miss Bragg.

The relation of the Museum with the public schools has been described on a previous page.

Affiliation with the institutions mentioned is of advantage to the Museum in making it the center of a larger amount of scientific work and in providing better equipment for the laboratory than would be possible otherwise, while to the other institutions the relation is of advantage in affording the use of the Museum collections and library and a better equipment of the laboratory than any one of them could afford alone.

CONCLUSION

In conclusion, it may be said that the efficiency of all departments is greater than ever before, that the scope of the work is broadened in a wholesome manner, and that the coming year should show a further increase in the service of the Museum to the people and to science.

PAUL M. REA, *Director.*

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

PROGRESS ON THE MINERAL COLLECTIONS
LOCAL FAUNA AND FLORA
NOTES FROM THE MUSEUM
NATURAL HISTORY SOCIETY

Volume IX, Number 2

FEBRUARY, 1913

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

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WM. G. MAZÏCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
NATHANIEL W. STEPHENSON.....*Art*
EDWARD R. MEMMINGER.....*Fungi*

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 9 CHARLESTON, S. C., FEBRUARY, 1913 No. 2

RECENT PROGRESS ON THE MINERAL COLLECTIONS

The department of mineralogy and geology has in view and in preparation several important special exhibits in addition to its general collections. Among these are two valuable collections which have been in the possession of the Museum for many years, and were partly exhibited in the old building, at the College of Charleston, but have not yet been installed for display in the present building. One of these is what has been known as the Russian collection, an exhibit from the Ural mountains and other important mining regions in the Russian empire; and the other is the collection of phosphate minerals from a number of localities in Europe and other parts of the world, which was gathered by Dr. C. U. Shepard, now of Summerville, and presented by him to the Museum. His object is to bring together a representation of all the different formations in which phosphate rocks and minerals occur for comparison with the product in South Carolina. These two important collections it is hoped will soon be placed on exhibition.

Two other special collections are those which have been mentioned previously in the Bulletin under the name of the Piedmont collection and the carbon collection. The plan of the

Piedmont collection was outlined in the BULLETIN of April 1909, and the carbon collection in the BULLETIN of March 1910. The present brief article is designed as a report of progress in regard to these two collections.

The Piedmont collection was designed to illustrate the occurrence and distribution of minerals throughout the belt of crystalline rocks, extending from Virginia to Alabama, east of the mountains, although it would include also to some extent, material from the mountain region to the west of the Piedmont. This belt, extending through the upper country of the south Atlantic states, is rich in minerals of a generally similar character, and includes the important mining regions of western North Carolina and northern Georgia as well as the extreme upper part of this state. No such collection as this exists to show the distribution of minerals throughout this extensive area, and the object of the Piedmont collection is to gather such an exhibit here. Since the article referred to was written considerable progress has been made in gathering material for the Piedmont collection, and the exhibit is already well begun, occupying a number of drawers in the storage room of the Museum. A valuable set of specimens was received from Dr. Joseph H. Pratt, State Geologist of North Carolina, and many specimens have been received from other sources. These, in addition to the North Carolina collection presented by the writer, containing specimens secured from several gentlemen connected with the earlier explorations in the corundum region of the state in the years following the War between the States, present a very good exhibit of the mineral resources of North Carolina at many points, although far from complete. A very good Virginia representation has also been secured from several sources. The writer personally visited two years ago the celebrated Rutherford Mines at Amelia Court House, and secured a fine representation of the minerals for which that locality is noted, and other material from other parts of the state. The Georgia and Alabama portion of the collection is not so well represented with the exception of one

or two leading localities in Georgia. The South Carolina portion of the Piedmont collection will form a part of the state exhibit which it is proposed soon to arrange.

The United States Geological Survey has promised to cooperate in this matter and the Southern Railway Company has also promised to prepare an exhibit of minerals from various portions of the territory traversed by its roads. In a short time it is hoped that it will be possible to install the Piedmont collection as a very interesting and important feature of the Charleston Museum.

The carbon collection is already installed and for a few years past has been one of the most interesting and instructive exhibits in the main hall of the Museum; it has been enlarged and added to from year to year until now it may be considered exceptionally complete of its kind. The latest additions recently brought by the writer are to the second division of the collection representing the hydro-carbons, the division of oils, bitumens and asphalts. Within a few months past specimens have been secured illustrating two very important localities of these minerals, which are not frequently represented. Some of these are from the great asphalt deposits of Kern County, California, where the asphalt has risen through a great fissure or vein and has flowed over the country, spreading like a glacier over an extensive area. Others are from the oil and bitumen deposits in Oklahoma, and illustrate limestones and sandstones partly impregnated with bitumen or semi-fluid asphalt. Additions have also been made to the third division of the collection, the resins, including fine examples of Baltic amber, and copal containing insects imbedded in the transparent resin. These statements will give some idea of the work which has been done and is still in progress in this department of the Museum. Other plans for a South Carolina special exhibit, and for an exhibit of gems and precious and ornamental stones which it is hoped ere long to install, will be treated in a further article.

DANIEL S. MARTIN.

LOCAL FAUNA

American Scoter and Ring-necked Duck.—In a recent revision of the mounted specimens of the birds of South Carolina, incident upon the printing of labels for the Museum's local bird exhibit, several corrections have been found necessary, two of these entailing changes of some importance in the records of the avifauna of the state.

Of two specimens labelled Surf Scoter, *Oidemia perspicillata* (Lam.), I noticed the female¹ to differ from the male in that the feathering on the bill did not extend any farther forward on the forehead than on the lores, whereas it is characteristic of both male and female in *O. perspicillata* to have the feathering of the forehead run forward on the culmen beyond that of the lores, to the nostril. Careful examination has proved that the female of these specimens is really a female *Oidemia americana* Swains., the American Scoter. Both specimens were taken in Charleston Harbor in January 1884, and presented to the Museum by Mr. Henry Hunter. The Surf Scoter is a common winter visitant. The American Scoter, on the other hand, is a rare bird on the south Atlantic coast, having been previously recorded only twice south of New Jersey, once in Florida and once in South Carolina.² The South Carolina record is for a male taken by Dr. Eugene Edmund Murphey in Bull's Bay, on May 7, 1903. The specimen which I have discovered in the Charleston Museum must therefore be considered in point of time the first record for the state, being taken nineteen years before Dr. Murphey's record was made.

The second noteworthy correction is in the determination of a specimen labelled Ring-necked Duck, *Aythya collaris* (Donov.), female, and recorded in the Museum catalog³ and in Wayne's Birds of South Carolina⁴ as the only Ring-necked Duck taken by Mr. Wayne and as the first recorded specimen taken in the state (Jan. 11, 1886). This species is well known to sportsmen and

¹ Spec. 160.

³ Spec. 143.

² Contr. Chas. Mus. I, 1910, 21.

⁴ p. 19.

large numbers have recently been recorded in the Museum bird survey. Examination shows, however, that the specimen in question is a female Lesser Scaup Duck, *Marila affinis* (Eyt.), the clear white speculum bordered with brown alone being sufficient to distinguish it from *Marila collaris* (Donov.) with its speculum of gray. This correction places the first authentic record for the Ring-necked Duck in South Carolina to the credit of Mr. F. S. Hanckel, Jr., who recorded eighteen specimens during the winter of 1910-1911. The first record is for an adult male taken on the Ashepoo River, December 17, 1910, by Mr. John Maybank. The head of this bird is in Mr. Hanckel's collection. Six or more specimens were taken at the time and the birds were reported abundant.

Being well supplied with mounted specimens of this species and not realizing the erroneousess of Mr. Wayne's first record, the Museum preserved none of the many Ring-necks presented for identification until December 1911, when a particularly fine head from an adult female taken on Ashepoo River, December 11, by Mr. F. S. Hanckel, Jr., was prepared as an unmounted skin.⁵

A Ring-necked Duck is recorded as taken February 8, 1908, on the Cooper River, by Mr. E. H. Burton. No specimen was preserved, however, and the sex was not recorded. Other records have since been made by Messrs. Julian Mitchell, Jr., Caspar Chisolm, E. A. Williams and Edward Simons. —L. M. BRAGG.

The Museum has a stock of frogs' eggs and tadpoles collected by Master E. H. Jennings, which will be distributed among teachers who apply for them. A container of some kind should be provided for removal.

Duck heads have been received as follows: Red-breasted Merganser, male; Black Duck, male; Mallard, male, and Ring-necked Duck, female, from Mr. E. A. Williams; Mallard, male, and

⁵Spec. 7108.

Green-winged Teal, male and female, from Miss Hope Harris; Blue-winged Teal, male and female, and Ring-necked Duck, female, from Mr. Edward Simons. The Museum is particularly anxious to secure an extensive series of duck records and would appreciate the privilege of examining specimens taken by sportsmen. Gifts of heads are very acceptable.

LOCAL FLORA

Dr. B. L. Robinson, Director of the Gray Herbarium, visited Charleston last spring and did some collecting about the city, Summerville and the Isle of Palms. With marked generosity Dr. Robinson has recently sent to the Museum complete data for all species collected by him and also for other specimens from South Carolina in the Gray Herbarium, and further offers to continue to list South Carolina specimens as they are discovered in the Gray Herbarium. Dr. Robinson has contributed these records in order to forward the publication of a work on the flora of South Carolina for which Miss Bragg is now gathering data.

The Museum has received a copy of *The Plant Life of Hartsville, S. C.*, by Professor W. C. Coker of the University of North Carolina. This work forms the most important recent contribution to South Carolina botanical literature as well as the finest account yet published of ecological work done within the state.

A collection of pressed plants gathered about Pendleton, S. C., during the summer of 1912, has been received from Miss Annie L. Sloane.

Miss Elizabeth P. Ravenel of Keowee, S. C. has recently given valuable assistance in recording Dr. Robinson's South Carolina records in the Museum's plant survey files.

Miss Susie Allan and Miss Isabel O'Neill have most kindly mounted a large number of specimens for the Museum herbarium.

NOTES FROM THE MUSEUM

Teachers who desire to borrow the Museum travelling school exhibits should make application directly to Miss Bragg at the Museum, either by telephone or letter. There are now twenty-five exhibits ready for circulation. A list of these exhibits may be found in the BULLETIN for December 1912. They will be freely lent to all teachers in either public or private schools.

A meeting of the primary teachers of the public schools was held at the Museum January 16. Miss Bragg talked on the nature study work for the winter months as outlined in the Charleston Nature Study Course.

Copies of the Charleston Nature Study Course are now ready and will be sent to any teacher on application.

Miss Emma Gibbes has been most kindly transferring to the Museum survey the records of South Carolina flora and fauna contained in the collections of her father, the late Professor Lewis R. Gibbes. Professor Gibbes' collections have been widely scattered, but fortunately were carefully cataloged before distribution.

Labels are now being printed for the exhibit of South Carolina birds, thanks to the kindness of Dr. C. H. Prince whose skill is rapidly bringing to pass what the Museum has found it impossible of accomplishment during the past year.

Mr. E. R. Memminger completed the revision of the Ravenel herbarium while in Charleston. He is now in Beaufort where it is expected he will secure numerous plant records for the survey. Mr. Memminger's generous assistance has been of the utmost value to the Museum. Without it the herbarium could not possibly have reached its present stage of accessibility nor the survey have been extended to any considerable limits. While nominally honorary curator of fungi, Mr. Memminger has devoted his time to building up the herbarium in all lines.

Dr. D. S. Martin is again at the Museum and as usual is making large and notable gifts to the geological department. This year

he has also contributed to the archeological collection, particularly specimens from Central America and Europe which are not only extremely interesting but difficult to secure.

NATURAL HISTORY SOCIETY

Dr. G. F. Matthew of St. John, N. B. spoke at the February meeting of Section A on the fossils of the St. John region.

The Section B meeting for February took the form of a demonstration by Mr. E. A. Hyer of the method of making a bird skin. Individual lessons in skin preparation will be given during the next month.

On Washington's Birthday both sections of the society visited Mulberry Castle on the Cooper River, taking the entire day for the trip. The society has seldom enjoyed a more profitable or delightful excursion. Thirty-five species of birds were observed.

The Botany Class of the Natural History Society has held its meetings regularly during the winter on the first and third Mondays of each month. The second February class met at Hampton Park instead of at the Museum. The next class, March 3, will also be conducted at Hampton Park, meeting at the entrance at 4.30 P. M.

Mr. Jesse Sharpe has been appointed by the president chairman of a committee on butterflies and moths in the Natural History Society. Messrs. William Simons, J. Bachman Chisolm and Charles Colson will, with Mr. Sharpe, constitute the committee.

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ANNIVERSARY NUMBER

1913

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EDITED BY
PAUL M. REA

THE ONE HUNDRED AND FORTIETH ANNIVERSARY
OF THE MUSEUM

Volume IX, Number 3

MARCH, 1913

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THE ONE HUNDRED AND FORTIETH ANNIVERSARY OF THE CHARLESTON MUSEUM

The pages of the BULLETIN contain many accounts of investigations which have carried the history of the Museum to increasingly remote times, until the recovery by Mr. John Bennett of the original prospectus as printed in the newspapers of March, 1773, established the fact that this museum is not only the oldest in America, but that it antedates by more than a quarter of a century the next oldest museum existing in this country. It is, therefore, fitting that our one hundred and fortieth anniversary should be an occasion of pleasant retrospection and of inspiration for future effort.

It is gratifying that this anniversary finds the Museum larger, better organized, and more actively engaged in service to science and to the people than at any previous period of its long and honorable history. It may fairly be said that the general conception of the work of museums has undergone a significant change in the past twenty-five years which has resulted in a development previously unattained. It may also seem that the reorganization and accelerated growth of the Charleston Museum in the last decade is due to this same new conception of the proper

scope of the institution, but a careful consideration of the prospectus of the founders convinces the writer that the essential features of the modern conception of a museum were present in their minds at that early date, and that we of the present generation are merely carrying out and amplifying the plans which they so ardently fostered. To them belongs, therefore, the distinction, not merely of founding the first American museum, but of conceiving an idea one hundred and forty years ago which has become national in the last quarter century.

The investigations of Mr. William G. Mazyck and others have made familiar many interesting episodes in the history of the Museum during the nineteenth century. It is only natural that some of these concern times of discouragement and difficulty, but it is surprising to learn of periods of astonishing popular enthusiasm. The significance of the Museum and the essential peculiarities of its present position can be appreciated best from a consideration of the conditions under which it has developed, and the occasion of this article may be pleaded as an excuse for a review, from another point of view, of facts already published in the BULLETIN from time to time.

THE FIRST EPOCH

The extent to which the Museum realized the ambitions of its founders while under the auspices of the Charleston Library Society is uncertain. That a considerable collection was obtained immediately after the founding of the Museum is shown by Ramsay's statement that "many specimens of natural history" were lost in the fire which almost totally destroyed the Library in 1778. The prosecution of scientific activities which this statement implies during the time of the Revolution is indeed remarkable. The fire, serious as it was, did not cause any pause in the development of the Library. The part of the collections saved was properly cared for and added to, and the proportionate attention devoted to the Museum is best shown by

the extent of the earliest accession list, covering the period from June 5, 1798 to 1808. This list has been published in full in the *BULLETIN*, and some of the specimens there listed are still in the Museum. The vigor of this pioneer museum is evident when neither war nor fire could check its progress.

THE SECOND EPOCH

The second epoch begins with the organization of the Literary and Philosophical Society of South Carolina in 1813 and its incorporation in 1814. The primary object of this society was stated to be the founding of a museum and this was no sooner announced than "numerous donations of specimens, in every department of the arts and sciences, were liberally bestowed, with which to commence its Museum."¹ The Library Society at once transferred its cases and collection to the new organization, and the "opportune arrival of that distinguished naturalist and practical chemist, Dr. Felix L'Herminier, from Guadeloupe, with an extensive collection of specimens, the fruit of twenty years application, expense and industry, which he offered to the Society, was an advantage, not to be lost sight of. Negotiations were immediately entered into with that gentleman, by a committee of the society. The citizens were also invited to co-operate with them in effecting the purchase of this collection, towards the establishment of a respectable and scientific Museum in Charleston."

A period of great enthusiasm was thus inaugurated. A system of life memberships in recognition of subscriptions of fifty dollars was established. "The State Legislature and the City Council, alive to the importance of this object, with a promptness and liberality which will forever redound to their credit, contributed largely to the purchase, and, with sums subscribed by individuals, enabled the society to make a purchase of that valuable collection, which is now one of the chief, and perhaps, most interesting ornaments of the city."

¹All quotations on this and the following page are from Shecut's *Medical and Philosophical Essays*, Charleston, 1819.

“Our distinguished fellow-citizen the Hon. Thomas Sumpter, minister, resident at Brazils, has lately enriched the Museum of the society, by presenting it with an extensive, splendid and very valuable collection of minerals, birds, and insects of Chili and the Brazils. The society are also in a very especial manner indebted to the Hon. Joel R. Poinsett, and the Hon. Henry Middleton, Stephen Elliott, Esq., Messrs. MacClure, Caradeaux, and other respectable individuals, for their valuable donations of specimens in natural history, and for which, their names have been honorably mentioned in the journals of the society.”

“ * * * * the society may be said to be in a flourishing condition. It consists of 138 members, many of whom are of the first standing in society, and of acknowledged literary and scientific talents. Its Museum is rich in an extensive collection of minerals, fossils and shells. The departments of Zoology, particularly those of Ornithology, Erpetology, Ichthyology and Entomology, are extensively filled. It is also rich in coins, medals and castings. The specimens of Art are also very considerable; and the whole are arranged in the most appropriate order by their late superintendent.

“The library of the society, being for the most part confined to books of science, is yet in its infancy. * * * * A fund is appropriated towards its particular establishment, which has been enriched by a donation of 750 dollars, from John Blake White, Esq., one of its members.

“Upon the whole, this society may be said to be established upon such sure foundation, as cannot fail to ensure its ultimate success, and we look forward with pleasing anticipations to that period, when it will rank among the most useful and respectable institutions of the kind in America.”

Surely nowhere else in America was there at this time so ambitious a museum, so generously supported, yet in 1819 we learn that Dr. L’Herminier found it impossible to make a living in Charleston and returned to Guadaloupe. He had been superintendent of the Museum, but in spite of the great interest of the

public it was apparently not possible to make adequate provision for his support. The Museum, however, continued to flourish. Mills, writing in 1826, says:

“The Museum is situate on Chalmers Street, nearly fronting the city square, and is well stored with curious objects in natural history, Indian antiquities, foreign and native works of art, etc.”

The Museum was established in Chalmers Street in 1824, and strenuous efforts were made to secure funds for a permanent building. An article on the editorial page of the *Courier* of November 23, 1824, pictures in a very vivid way a situation which has been almost exactly duplicated within the past decade, when the need of an adequate building and the value of the Museum to the city have been constantly presented to the people. Space forbids a detailed comparison of recent conditions with those of 1824, but one statement deserves special notice. The unknown writer of the article says: “In these enlightened times, a public Museum is as necessary an appendage to a city, as a public newspaper or a public library.” This sentiment has been expressed not infrequently in the past twenty-five years and its truth is becoming generally recognized, but how many, even among museum workers, are aware that it was published in concrete form as early as 1824? It may be said in passing that this same article refers to Peale’s Museum in such a way as to indicate that it was held up as something of an object lesson at this time. Peale’s Museum was established in Philadelphia in 1785, and was, perhaps, the second museum organized in America. Although it never compared in breadth of plan with the Charleston Museum, it aroused much interest and its collections were finally incorporated with those of other institutions.

It is hardly possible in the limits of this article to convey an adequate conception of the fervor of popular interest in museums at this time. The newspapers of 1826 and 1827 carry instructive advertisements showing that the Museum was open to the public every day and every evening, always “brilliantly illuminated” and often with “a Band of Music!” Nor should

we belittle the exhibits of those days, in spite of the sensational character of some of them. It is an extensive collection that exhibits "800 Birds, 70 Beasts, 200 Fishes, 4000 Specimens of Minerals," "a Gramphus Whale, 20 feet long," an Egyptian mummy, polar bear, black and red wolves of South Carolina, South African lion, bones of a moa or ostrich, and a boa constrictor, 25 feet long.

Further light is shed on the spirit of the times by the advertisement of a second and apparently independent museum at the corner of Meeting and Market Streets which included 200 species of birds, in addition to more sensational attractions, and was also "brilliantly illuminated" every evening.

THE THIRD EPOCH

The third epoch begins in 1838, when the Museum, apparently unable to finance a building of its own was espoused by the recently organized Medical College of the State of South Carolina. This was one of the leading medical colleges of the country at this time and included in its faculty men of high reputation in pure science as well as medicine. The Museum was now transferred to the Medical College building on Queen Street, although it apparently remained the property of the Literary and Philosophical Society.

It is interesting to note that among the institutions recently affiliated with the Museum is the Medical College of the State of South Carolina. Like the Museum, the Medical College is emerging from the waters of tribulation and is undergoing a reorganization which opens a vista into a most promising future. We rejoice in the renewal after three score years of mutually helpful relations between these sister institutions.

THE FOURTH EPOCH

The fourth epoch begins in 1850 with the third annual meeting of the American Association for the Advancement of Science,

held in Charleston in March of that year. At this time Charleston was fortunate in the possession of a galaxy of scientific men, including Bachman, Holbrook, Tuomey and Holmes, Shepard, Kurtz, Gibbes, Ravenel, and others. All of these and the general public were responding to the enthusiasm of the elder Agassiz, who was a professor in the Medical College. Agassiz conceived the idea of re-organizing and developing the Museum on a firmer basis and rallied his colleagues to the support of the plan with such success that within a few months a permanent salaried curator was appointed and actual work started. The building of the Medical College containing the Museum was about to be razed in preparation for the erection of the Roper Hospital. For this and other reasons the College of Charleston became custodian of the Museum, which occupied the entire second floor of the main building. The Literary and Philosophical Society had gradually become defunct, but the Museum found new support in the Elliott Society, which achieved notable fame in the decade before the Civil War, chiefly through the brilliant work of McCrady. The Society did much to upbuild the Museum and with the ardent and devoted labors of the curator, Professor Holmes, most gratifying results were achieved.

At this auspicious moment, the country was again swept by war and the collections of the Museum were either buried on the campus or packed up and sent to Edgefield, where Professor Holmes refugeed and where part of the collection was destroyed by fire. Immediately after the war Professor Holmes brought back and installed the collections. Professor McCrady became curator in 1869 and was succeeded in 1873 by Dr. Gabriel E. Manigault, to whose skill and energy is due the large osteological collection and most of the birds and large mammals. Following the death of Dr. Manigault in 1899, Dr. George H. Ashley became curator and endeavored to stem the tide of neglect and reduced support which seemed destined to overwhelm the Museum.

THE FIFTH EPOCH

After Dr. Ashley resigned in 1903, a general re-organization was undertaken. This is familiar to the people of Charleston and to readers of the BULLETIN. Its results have been to secure a new and commodious building and to make the Museum essentially a municipal institution. Specialists have generously given their services as honorary curators and a salaried staff has been organized.

Affiliations have been established between the Museum and the colleges and the public schools of the city and the Chamber of Commerce and other commercial bodies, thus securing community of purpose and co-operation in action. These affiliations also broaden the support of the Museum and enable one central equipment to be utilized by many allied interests. An increasing body of members has been created, whose contributions are applied to permanent improvements in the collections and equipment, while the City Council assumes the expense of maintenance. At no previous time has the Museum maintained such varied and helpful relations with the community.

This is not only the one hundred and fortieth anniversary of the founding of the Museum but the tenth anniversary of the beginning of the re-organization which has made it truly The Charleston Museum—created by the people; maintained by the City Council; and administered for the instruction and recreation of the public and for the advancement of science.

The Museum still has grave problems to solve, but it has good courage, which we hope may be increased by this retrospect, and the future presents abundant opportunities to achieve results worthy of our ideals. Let us be proud of our history only as it spurs us to greater efforts.

P. M. REA.

The Charleston Museum

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

THE DEPARTMENT OF GEOLOGY AND MINERALOGY

Volume IX, Number 4

APRIL, 1913

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZŮCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
NATHANIEL W. STEPHENSON.....*Art*
EDWARD R. MEMMINGER.....*Fungi*

Curator of Books and Public Instruction

LAURA M. BRAGG

Instructor in Physiology and Zoology

L. WM. MCGRATH

Secretary to the Director

RENA ROWELL

Assistant in Library

BARBARA K. BRAGG

THE CHARLESTON MUSEUM was organized in March, 1773, by the Charles Town Library Society. In 1815 it was transferred to the Literary and Philosophical Society of South Carolina, and in 1828 was deposited in the Medical College of South Carolina. In 1850 the Museum was transferred to the College of Charleston, where it was known as the College of Charleston Museum. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....\$ 10	PATRONS.....\$ 500
SUSTAINING MEMBERS.... 25	BENEFACTORS..... 1000

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 9 CHARLESTON, S. C., APRIL, 1913 No. 4

THE DEPARTMENT OF GEOLOGY AND MINERALOGY

INTRODUCTION

The transformation of the department of geology and mineralogy from a small collection in a condition little short of chaotic to a fairly extensive and very representative one in complete order is due to the devoted labors and generous gifts of Dr. Daniel Strobel Martin, honorary curator of the department. All of the large projects with which Dr. Martin has been engaged are now either completed or so well advanced that the time seems ripe for a general summary of his work. This is given below as contained in a report recently made to the director of the Museum. By special request, it includes a summary of Dr. Martin's extensive gifts to the Museum.

P. M. REA.

GENERAL WORK

My first work for the department of geology and mineralogy consisted in gathering together and arranging the old material belonging to the Museum and in devising a system of records to preserve the history of the specimens. The lack of such a system in the past had resulted in the loss of the history, and consequently of the value of much of the material. Fortunately, the important Shepard Collection of phosphates and the Russian collection of minerals from the Ural were for the most part fully labeled and capable of being identified by means of the manuscript catalogs still preserved. Beyond these, however, a large proportion of the minerals and fossils were not in such shape that their localities and sources could be recorded. Under my direction all the specimens in these departments were gone over, cleaned, and as far as possible identified, but a considerable residuum of material of undetermined and uncertain source was left. This

work occupied my time during the first year of my connection with the Museum in 1906. In the year following I began the work of extending and enlarging the collections from all available sources. My own extensive gatherings of minerals, rocks and fossils, accumulated during forty years, I decided to place in the Museum either on deposit or as a gift. In addition to this I have sought to procure contributions from friends and from other institutions, partly by gift and partly by exchange. In this endeavor I have succeeded beyond my anticipation. The collections in these departments of the Museum are probably the most extensive in the southern states. In some departments this is certainly true, and all specimens are in good condition for exhibition as fast as proper case accommodations can be provided for them.

Each specimen placed in the regular collection is first numbered with an indelible carbon ink and then recorded in a card catalog showing the name and locality of the specimen and any points of special interest connected with it. In this manner it is hoped that the loss of localities and records so unfortunate with regard to the earlier material will henceforth be absolutely prevented.

IMPORTANT ACCESSIONS

The most important accessions which I have obtained are as follows: (1) The Booth collection of fossils, gathered and presented to the Museum by Mr. Henry Booth of Poughkeepsie, N. Y. On hearing of the work of the Museum and the conditions under which it was being carried on, Mr. Booth very generously presented his entire collection containing some 347 specimens, mostly well determined fossils, largely from the northern and western states. (2) The collection of tertiary fossils of Maryland, obtained from the Maryland Academy of Sciences at Baltimore through the courtesy of its president, Dr. Philip R. Uhler, in 1907. This collection comprises 102 species and individuals, and gives an excellent representation of the fossil tertiary fauna of that State. (3) The Graves collection of minerals, principally from Missouri, but also from other foreign and American localities, given to the Museum in 1910 by Mr. F. P. Graves of Joplin, Missouri. This contribution comprises 56 specimens, many of them choice. (4) The Canfield collection of minerals, chiefly zeolites given in 1910 by Mr. Frederick G. Canfield of

Dover, N. J. This comprises 37 specimens, and is notable from the fact that it contains material of remarkable beauty representing the zeolite minerals of Iceland and New Jersey. In the Canfield collection, supplemented with material given by myself and others, the Charleston Museum possesses a representation of this beautiful group of minerals that is unequalled anywhere south of Washington. Many other gifts have been made by different persons at various times, but these are the chief ones deserving of special notice.

My own gifts to the Museum may be grouped under the following heads: (1) Minerals; (2) Rocks; (3) Fossils; (4) Archaeological specimens; (5) Zoological and botanical material.

MINERALS

The minerals which I have actually given to the Museum number 1554 specimens. In addition to these there are many specimens still packed, most of which will be of value as duplicates or for exchange. The collection is fairly representative of the whole field of mineralogy. Among the groups which are most fully represented mention may be made of the carbon minerals, the zeolites, the tourmalines, and the micas. The carbon minerals have been embodied in a special exhibit to which further reference will be made. The zeolites and various minerals, such as pectolite and prehnite, associated with them in the igneous (trapean) rocks are remarkably well displayed. The specimens have come chiefly from the notable locality in Orange Mountain, New Jersey, which has yielded so many beautiful specimens in recent years, together with others from foreign localities, especially the Giant's Causeway in Ireland and the Iceland localities already mentioned in speaking of the Canfield collection.

The tourmalines also form a very complete exhibit illustrating the extreme variety presented by this mineral in color and mode of occurrence. Besides the ordinary forms of tourmaline, I have been able to obtain a remarkable series of the colored (lithia) tourmalines from both New England and California. The well known localities at Haddon Neck, Connecticut, and those in San Diego County, California, both of which have been largely worked for transparent gem tourmalines of rich color, are here represented on a scale not to be seen anywhere south of the National Museum at Washington. Besides visiting and collect-

ing at the Haddon localities in person, I was so fortunate as to secure from Mr. Ernest Schernikow of New York, who had been connected with the tourmaline mines at both these localities, an unusual amount of this material. Other localities in Maine and elsewhere are also represented. The series includes not only the familiar forms of black tourmaline but the rich brown crystals from St. Lawrence County, New York; the pink, green, and polychrome varieties of the lithia tourmalines; and the rare colorless variety, achroite. Many of them are in large crystals and illustrate these unusual forms with great perfection.

The micas and hydromicas are also very fully represented. Among these are very fine examples of the variety of phlogopite known as "star" mica, in which a luminous star formed by three lines intersecting at sixty degrees appears when the specimen is held in a dark room between the eye and a small brilliant light. The hydromicas are fully represented in a number of rare species. Many other groups are very fully illustrated but cannot be specified here.

THE CARBON COLLECTION

Apart from the general collection, two or three special exhibits have been arranged or are in preparation. The carbon collection above referred to has been fully installed in the main hall and is a somewhat unique exhibit. It comprises nearly one hundred specimens designed to illustrate the evolution of the carbon minerals in three divisions: the coals, the asphalts, and the resins. The object of the collection is to present clearly to view the series of changes by which vegetable matter passes over from the vegetable to the mineral kingdom.

The first section, that of the coals proper, starts with moss and shows the passage to soft and hard peats such as are used for fuel so largely in Europe though not yet in this country. In the same way the passage is shown from wood to lignite, and thence through lignitic coals to the bituminous and anthracite coals of commerce, and then by other changes to graphitic anthracite as produced in nature, to coke both natural and artificial, and to nearly pure carbon in the form of graphite, the last specimen in the series being a fine example of the crystalized graphite.

The second series, the natural hydrocarbons, should begin with natural gas. This, of course, cannot be shown, but the next stage is exhibited in samples of petroleum (both light and heavy

oils) and of rocks partly saturated with heavy oil or bitumen from which oils may be distilled. Further consolidation and hardening is shown in the asphalts proper from the celebrated Pitch Lake of Trinidad in the West Indies and the great asphalt flows of Kern County, California, and then the asphaltic coals of New Brunswick and West Virginia, together with the natural wax (ozokerite) of Galicia and Utah.

The third series, the resins, shows the occurrence of these bodies in wood and in lignite. The fossil resins include fine examples of amber from the Baltic Coast and copal from various localities in South America, Africa, and the East Indies. Several of these show fine examples of insects enclosed in the transparent resin.

PIEDMONT COLLECTION

Another special collection not yet placed on exhibition is that known as the Piedmont collection of minerals. This is designed to illustrate the distribution of species along the belt of crystalline rock, extending through the middle and southern Atlantic states from Virginia to Alabama. This region constitutes, as expressed by Prof. Joseph H. Pratt of North Carolina, a single geological and geographical province, and is rich in minerals at many points. The relations and modes of occurrence of these minerals are matters of scientific interest and the products of each state may be seen in the collections at the several capitals and state universities, but no general collection has ever been formed to illustrate the distribution of mineral species along the entire crystalline belt. This has been the object in forming the Piedmont collection, which was fairly begun three years ago and has now attained to considerable and valuable proportions. It is my hope and desire to enlarge and extend it until it shall present a thoroughly representative exhibit of the mineralogy of the South Atlantic states.

Into the formation of this collection there have entered: (1) Material already belonging to the old collections of the Museum, some of which, especially that from Georgia gathered by the late Dr. C. U. Shepard, Sr., is of excellent quality; (2) A considerable amount of material belonging to my own collection. This was obtained from gentlemen connected with the early development of the mineral industry of North Carolina soon after the close of the Civil War. Among these should be mentioned Dr. Alexis A. Julien of New York, the late Prof. Henry C. Bolton of Washington, and the late Prof. F. A. Genth of Philadelphia. A number of the specimens bear labels in the handwriting of these gen-

tlemen, those of Dr. Genth having been furnished me by him in illustration of his celebrated paper on "The Alterations of Corundum." (3) A valuable contribution from Dr. Joseph Hyde Pratt, state geologist of North Carolina. (4) A valuable series of specimens collected by myself at the celebrated Ruthersford mines at Amelia Court House, Virginia. (5) A collection of minerals from the upper part of this state obtained by exchange from Chicora College at Greenville. In addition to these are many smaller contributions from individuals and a further accession not yet unpacked from the United States National Museum at Washington. There is also a considerable series of rock specimens from various parts of this state, partly gathered by myself and partly obtained from various sources, as well as the South Carolina rocks and minerals in the collection of Mr. Sloan.

PRECIOUS AND ORNAMENTAL STONES

The third especial collection is one illustrating precious and ornamental stones, comprising specimens which I have gathered during many years. While by no means complete and necessarily consisting for the most part of small specimens, this will present a beautiful and attractive exhibit.

ROCKS

The Museum already possessed a fair collection of rocks both American and foreign. To these I have added a nearly complete representation of the paleozoic series of New York State, from Ohio, and numerous volcanic rocks from various localities.

FOSSILS

I have presented to the Museum the greater part of my extensive collections in paleontology. These represent more than 500 specimens ranging from the eozoic through to the existing epoch and illustrating somewhat completely every important period of geological time. This is doubtless much the fullest representation of the paleontology of New York State to be found south of Washington, together with much material from other parts of the United States, Europe and elsewhere.

TERTIARY COASTAL PLAIN FOSSILS

It has been my desire ever since taking charge of the department to develop here a collection of the tertiary fossils of the

coastal plain that should correspond in its representative character to the Piedmont collection of minerals. This collection has now been fairly begun. Several years ago I was able to secure a very fine illustrative series of tertiary fossils of Maryland from the exhaustive collections of the Maryland Academy of Sciences, through the courtesy and kindness of its president, Dr. Philip R. Uhler. This collection had been unpacked, classified and arranged during the past two months. In addition to these there is a good representation of Virginia tertiary fossils, principally my own contribution, and a small but characteristic series from North Carolina obtained from duplicates at Davidson College. To these should be added the carefully selected series of eocene fossils from Alabama and Mississippi given by Dr. L. T. Chamberlain from his extensive collections in the Philadelphia Academy of Sciences. These, with the old material from this state belonging to the Museum, and the complete collections deposited by Mr. Earle Sloan, form already a very valuable series showing the tertiary paleontology of the South Atlantic and Gulf states. A large amount of additional material in this department partly American, partly from Europe, and partly from Syria is still packed awaiting space for display.

ARCHAEOLOGICAL SPECIMENS

The archaeological collection which I have given to the Museum comprises 111 specimens of considerable interest. Besides the ordinary objects, such as stone implements of different kinds from various parts of the country, it contains some things that are deserving of special mention. Among these is a series of specimens from the locality on Rock Creek near the city of Washington, described by Prof. J. A. Holmes as an Indian workshop. These illustrate every stage in the process of manufacture of stone implements, from pebbles just broken by one or two strokes to well developed arrow and spear heads. Another interesting group of specimens was obtained at Trenton, N. J., from and with Dr. C. C. Abbott, whose researches and discoveries as to paleolithic remains in the post-glacial gravels of the Delaware River attracted great interest at the time of their publication. Another set of specimens, received from the late eminent Prof. Charles Frederick Hartt, the first director of the geological survey of Brazil, illustrates some facts brought out by his early explorations about 1870, along the Rio Tapajos. These consist of the shells of the freshwater mussels of the two genera (*Hyria* and *Castalia*) characteristic of the Amazon basin and corresponding to

the Unio fauna of North America. These had evidently been used by the Indians on a great scale for food. With them are associated stone implements and broken pottery. Specimens of the shells and the pottery from these great shell heaps are here to be seen. Another series of specimens consists of ancient pottery from Costa Rica. Two complete vases, one of the peculiar tripod type characteristic of Central America and Mexico may here be seen, together with a large number of fragments illustrating the various forms of ornamentation: tripod feet in the form of animal heads, raised ornaments and animal figures attached to other parts of the vases, and various forms of incised and attached decoration.

There is also a small but fine exhibit in European archaeology comprising stone implements, both paleolithic and later from various localities in the British Islands and on the continent of Europe. With these are bone implements and partially worked reindeer horns from the lake dwellings of Switzerland and fine jaws of the great Quaternary Elk, also from Switzerland, all these latter representing the inter-glacial or reindeer epoch of prehistoric time.

ZOOLOGICAL AND BOTANICAL MATERIAL

Under this head mention may be made of a number of plants which I have collected in this state and North Carolina, and an extensive series of American and foreign ferns, the latter having come principally from the herbarium of the late Mr. A. H. Curtiss.

SLOAN COLLECTION

In closing mention should be made of the very important private collections deposited with the Museum by Mr. Earle Sloan of this city, recently state geologist of South Carolina. These, while not belonging to the Museum, will yet be of immense value and interest to the student of South Carolina geology. They comprise complete series of specimens illustrating minerals and rocks of the upper country and the rocks and fossils of the coastal plain, all carefully named and located, and furnishing, in connection with Mr. Sloan's published reports, a complete exhibit of the resources of the state. The accession of this material is a matter of notable interest and advantage. The whole is to be gone over and arranged by Mr. Sloan as soon as his time permits and the Museum can furnish suitable case accommodations.

DANIEL STROBEL MARTIN.

The Charleston Museum

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THE ANNIVERSARY RECEPTION
LOCAL FLORA AND FAUNA
NOTES FROM THE MUSEUM

Volume IX, Number 5

MAY, 1913

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZÏCK.....	<i>Conchology</i>
DANIEL S. MARTIN.....	<i>Geology</i>
ARTHUR T. WAYNE.....	<i>Ornithology</i>
NATHANIEL W. STEPHENSON.....	<i>Art</i>
EDWARD R. MEMMINGER.....	<i>Fungi</i>

Curator of Books and Public Instruction

LAURA M. BRAGG

Instructor in Physiology and Zoology

L. WM. MCGRATH

Secretary to the Director

RENA ROWELL

Assistant in Library

BARBARA K. BRAGG

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 9

CHARLESTON, S. C., MAY, 1913

No. 5

THE ONE HUNDRED AND FORTIETH ANNIVERSARY RECEPTION

The Charleston Museum celebrated its one hundred and fortieth anniversary on March the twenty-eighth by giving an evening reception to its many friends. Fully eight hundred people were in attendance. The reception was held in the main exhibition hall which was most attractively decorated, the exhibits themselves furnishing the keynote but so softened by festoons of long grey moss and smilax and by banks of palms as to produce an illusion of tropical jungle life in that staid hall of science. The numerous charming refreshment tables, however, diffused a properly civilized atmosphere.

Three years before the Audubon-Bachman Loan Exhibit had turned the previously empty hall into a huge picture gallery. One large floor case of birds then gave hint of a possibly different line of usefulness. Another year saw the Silk Culture Exhibit occupying one-fourth of the floor space, the remainder having assumed a definite museum aspect although the surplus of room was pathetically obvious. There was still ample accommodation for the crowd the night of the reception but a decided rearrangement of exhibits was necessary in order to secure it. Another year and such a reception will have become an impossibility until such time as the galleries are completed. Lack of funds has made the work of installation slow but a review of the special openings of the Museum is significant of progress.

The receiving line also was indicative of the broader field of usefulness upon which the Museum has entered, being representative of the various Museum activities and of affiliated in-

stitutions. The personnel was as follows: Mayor John P. Grace, representing the City of Charleston, and Mrs. Grace; the Hon. John F. Ficken, president of the board of trustees and president of the Charleston Library Society, and Mrs. Ficken; the Hon. W. St. Julien Jerve, chairman of the Museum Committee; Mr. Paul M. Rea, director of the Museum, and Mrs. Rea; Miss Laura M. Bragg, curator in the Museum; Mr. Henry P. Williams, representing the Museum members, and Mrs. Williams; Miss Annie L. Sloan, representing the Natural History Society; Mr. Harrison Randolph, president of the College of Charleston, and Mrs. Randolph; Dr. Robert Wilson, Jr., dean of the Medical College of South Carolina, and Mrs. Wilson; the Hon. James Simons, chairman of the board of public school commissioners, and Mrs. Simons.

The following were the chairmen of the various committees to whose most efficient service the very marked success of the reception was due: invitations, Mrs. Paul M. Rea; refreshments, Miss Elizabeth Horlbeck; decorations, Mrs. B. A. Hagood; entertainment, Miss Harriet Coffin and Mr. L. Wm. McGrath; head usher, Mr. Ellison A. Williams; committee in charge of reception, Miss Annie L. Sloan, Miss Laura M. Bragg.

The history of the Museum since its foundation by the Charleston Library Society in 1773 was reviewed by Director Rea in the BULLETIN for March. The present notice of the anniversary would naturally have appeared in the April issue had not lack of space prevented.

LOCAL FAUNA

Breeding Birds of Heron Island.—About fifty members of the Natural History Society and their friends made a trip to Heron Island near Secessionville, Saturday, May the third, on the yachts Dolphin and Vadie. The party left the Yacht Club wharf about 3.30 P. M. and reached Heron Island in one hour. Owing to the size of the party it was deemed advisable not to land everyone as the herons would thereby be kept from their nests long enough for the eggs to become chilled. Consequently only a few were sent ashore to report on the number of nests, the kinds of herons, and the condition of the trees planted by the Museum last fall.

There were five species of heron found on the island this trip, the Louisiana Heron (*Hydranassa tricolor ruficollis*) being by far the commonest, numbering probably several hundred pairs. The Little Blue Herons (*Florida caerulea*) came next in abundance

and it was noted that there were very few if any in the white phase. The rare Snowy Egrets (*Egretta candidissima*) seemed to be increasing, and were more abundant than when I visited the island last July. The boats anchored near enough to the shore for the party to make out the plumes on the Egrets with the aid of good glasses. The Green Heron (*Butorides virescens*) which can be found widely distributed in summer of course nests on the island. The Black-crowned Night Herons (*Nycticorax nycticorax naevius*) were numerous, and undoubtedly they also breed on the island. No American Egrets (*Herodias egretta*) were seen on this trip, though they have been reported in former years. The party observed about twenty species of birds during the afternoon.

E. A. WILLIAMS.

Further Observations on Heron Island.—The present breeding site of the herons on Heron Island is located exclusively on the inner side of the island facing Secessionville, where a fringe of bushes was left when the island was practically denuded last year and planted out in hay.¹ Seven tall palmettoes guard the thickly crowded nests beneath and probably indicate the reason why the clearing of the island was not made complete. Here also are the piles of brush thrown on the narrow beach after it was cut from the island. This brush and the bushes still standing consist almost entirely of Live Oak (*Quercus virginiana*) and of Christmas-berry (*Ilex vomitoria*), running into Sea Ox-eye (*Borrichia frutescens*) and Saltwater Myrtle (*Baccharis hamifolia*) along the beach. Except for these and a few herbaceous beach plants and grasses the island is completely in possession of a luxuriant growth of weeds, unquestionably introduced with the hay seed planted last year. Barely topping the weeds are the young Live Oak and Christmas-berry trees so carefully set out last fall with the fifty dollars contributed by the National Audubon Society. No sign of nests are to be found among the new plantation though one was observed in that sturdy weed, the common Nightshade (*Solanum nigrum*). The trees seem to be alive but have not leafed out, and furthermore, they need to be more thickly planted to afford immediate support for nests. The Museum will need to plant more extensively and to make some effort to eradicate the weeds before this heron colony can be restored to its former numbers, which are said to have reached the thousands.

¹ See Sass, H. R. The Secessionville Heronry. BULL. CHAS. MUS. VIII, 1912, p. 51—53.

Even then several years will be needed for the growth of the new trees. Fortunately the Sea Ox-eye and Saltwater Myrtle are already spreading naturally. A matter for congratulation is that of the birds which have been driven away the greater part seem to be of the commoner species, while the Snowy Egret (*Egretta candidissima*), for the preservation of which the effort to save the island has been made, seems actually to be increasing. At the time the island was last visited, on May third, the birds had completed nest building and were evidently in process of egg laying. The nests contained from one to five eggs, the latter number being rare. Numerous nests were on the ground; as many as possible were flat on the tops of the low bushes and still others were crowded into every available space that could support a nest.

L. M. BRAGG.

SPRING BIRD OBSERVATIONS

Black Skimmer.—This summer resident, which generally does not appear until after April 1, was seen this year on January 19 by Mr. Ellison A. Williams. It was seen again on February 7 by Messrs. Burnham and Rhett Chamberlain, and has been recorded regularly since that date.

Woodcock.—So few breeding records have been made for this species that another may be of interest. On February 22, 1913, a Woodcock was shot at Summerville, S. C. When the bird was drawn, it was found to contain several eggs, the largest of which would probably have been laid in two or three days.

Ground Dove.—On February 22, 1913, Mr. Alexander Sprunt, Jr., found at Beaufort, S. C., a Ground Dove's nest containing two fresh eggs. These are now in the Museum collection. The Ground Dove has never before been known to breed earlier than April.

Red-eyed Vireo.—The earliest migration record for this species was made this year when I found two Vireos at Otranto on March 30.

Swainson's Warbler.—Although this warbler is known to be common in certain restricted areas in this region, it has never, until the present season, been reported by a member of the Natural History Society. On May 11, 1913, at Otranto, I saw and positively identified one in the deep swamp.

Mockingbird.—Early in the spring of this year—before the Summer Tanager had arrived—I heard a note which was an

exact reproduction of the Tanager's sharp, clucking call. To make the deception complete, this was quickly followed by the Tanager's song. It was not until I had found the mimic and had watched him give the Tanager's call, the song, the call again, then break into his own inimitable music that I could believe that I had not made an early record for the Tanager. We generally think of the Mockingbird as imitating only the sounds about him, but here is an instance of his remembering from the year before and exercising his memory at a very timely season.

Brown Thrasher.—In his "Birds of South Carolina," Mr. A. T. Wayne says that full sets of the eggs of this species can generally be found by May 9. In the country immediately about Charleston, however, I have, for several successive years, found full sets of eggs by April 23. On April 29 of this year, I found a set of four eggs which were hatching. As a Thrasher incubates for twelve days, the set of eggs must have been complete by April 17, and the first egg must have been laid not later than April 13.

F. M. WESTON, JR.

Mr. C. A. Ruff has recently contributed material for an exhibition of the work in Charleston Harbor of the ship worm, *Xylotrya fimbriata*, and of the small crustacean *Limnoria lignorum*, both of which are so destructive to wharves and piles. In the vicinity of Charleston a non-creosoted pile must be replaced every three years in consequence of the destruction caused by these two small creatures.

Among the specimens received since the publication of the last Local Fauna notes are the following:—Shoveller (*Spatula clypeata*) taken at Green Pond, February 22, by F. S. Hanckel, presented by F. S. Hanckel, Jr.; Wood Duck (*Aix sponsa*) taken on Goose Creek by Mr. Edward S. Wells and presented by Mrs. Edward S. Wells; Mourning Dove (*Zenaidura macroura carolinensis*) still in juvenile plumage, taken at Green Pond, February 27, by Rev. E. A. Duff; mounted bats, and mouse and bird skins collected by Mr. Caspar Chisolm at McClure's Fork, Virginia; skull of a porpoise from Bull's Bay, presented Mr. S. Schultz.

The collection of living animals has received numerous additions. Mr. Wm. Hinson secured for the Museum the female opossum now exhibited in a large cage in the main hall. She and her nine little 'possums have already been visited by five school

teachers with their classes as well as by many school children unaccompanied by a teacher.

Mr. H. A. Lunz has given another alligator nearly four feet long.

Master Ross Vaughan has contributed largely to the attractiveness of the snake room this year, the Coral Snake, King Snake, Black Snake, Banded Water Snake and one Keeled-scaled Green Snake being his gifts. The other green snake now in the collection was presented by Master Allen Miles. Other fine snakes recently received are a young Diamond-backed Rattlesnake from Mr. F. C. Ford of Summerville; a Water Moccasin from Mr. John Randolph, collected on the Isle of Palms; and a very fine large Coachwhip Snake presented by Miss Minnie Coffin, taken on Young's Island.

LOCAL FLORA

Mr. E. R. Memminger has recently presented to the Museum a small collection of pressed plants gathered at Beaufort, S. C., and at the Charleston Navy Yard.

Pressed plants collected at Barnwell, S. C., and near Darlington have been received from Mrs. Thomas Frost.

Miss Emma Gibbes has completed the work of transferring to the local survey records the data of South Carolina specimens in the collection of the late Professor Lewis R. Gibbes, and is now kindly assisting with the plant survey records.

Miss Frances Dill has also done valuable work on the plant survey records.

About three hundred plants have been mounted by members of the Natural History Society and added to the herbarium.

Miss Bragg has been collecting extensively about Charleston and also in the neighborhood of Chicora Wood, on the Pee Dee, the home of Mrs. J. J. Pringle. As a result a large amount of local material is now ready for the herbarium.

NOTES FROM THE MUSEUM

The second of the contributions from the Charleston Museum will be issued early in June. This is Mr. Wm. G. Mazyck's Catalog of the Mollusca of South Carolina. Mr. Mazyck has studied the mollusca of the State more extensively than any other conchologist. His Catalog lists 534 species; it is carefully annotated to show the distribution and abundance of each species which Mr. Mazyck has personally observed within the limits of the State, and authorities are cited for the comparatively few species not thus examined. Four new species and two new varieties are described. The Catalog is preceded by an Introduction in which Mr. Mazyck gives briefly the history of conchological research in South Carolina, and by a tabulation of the classification adopted. A List of Works Cited and an Index to Genera complete the paper. Price, fifty cents.

A finely mounted specimen of the English Pheasant has been received, the gift of Dr. W. C. Klatte.

Two volumes of Buffon's *Oviparous Quadrupeds and Serpents* have been presented to the library by Mrs. E. H. Pringle.

Miss Barbara K. Bragg, who has for two years been assistant in the library, has been obliged to give up the work on account of ill health. Miss Harriet Coffin will fill her place for the remainder of the year.

CAROLYN MORSE REA

The Museum has suffered an inestimable loss in the death of the wife of its Director, who passed away on Sunday, May the eleventh, after a five weeks illness from typhoid fever. Mrs. Rea spent her youth in Medford, Massachusetts, until she entered Wellesley College in 1895. Her chief interests were ever along scientific lines. During the summers of 1898 and 1899 she studied at Wood's Hole and after taking her B. A. degree in 1900 became instructor in biology at Western College, Oxford, Ohio, and later teacher of science at the Lowell Normal School, Lowell, Massachusetts. In 1904 she was married to Paul Marshall Rea, professor of biology in the College of Charleston and director of the Charleston Museum. Thenceforth his interests were to be hers. During the early years of struggle for the reorganization of the Museum Mrs. Rea was her husband's chief assistant as she has ever been his first advisor. Every detail of the work was familiar to her and her sound judgment and untiring efforts on behalf of the Museum have contributed in large measure to its present development. The very existence of the Charleston Natural Society History is due to her, since at a time when it seemed on the verge of extinction she assumed responsibility for it and worked out its success. Today the Society is one of the most influential factors in the life of the young people of Charleston. The recent installation of mineral exhibits at the Museum is her work, the excellent descriptive labels of which are significant of the clear logical mind which wrote them. Her last work of love for the Museum was the rather arduous task of preparing the invitation list for the anniversary reception.

Mrs. Rea's activities extended beyond the Museum to all movements for the public welfare. Her interest in the work of the Civic Club, the Public Schools, and the Housewives' League will make her loss deeply felt in Charleston, and among the broad circle of friends who have felt the impress of her strong personality.

Mrs. Rea leaves one son, John Morse Rea, born in September, 1909.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distribution, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

Volume I of this series began in April, 1905, and is complete in 5 numbers. Subsequent volumes consist of 8 numbers each. A title page and index to the [first five volumes] was published in the issue of December, 1909.

Sent prepaid to any address for 25 cents a year. Single copies 5 cents each.

(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I Birds of South Carolina, by Arthur Trezevant Wayne.
Pp. XXI + 254. Price: paper, \$2.75; cloth, \$3.25.

II Catalog of the Mollusca of South Carolina, by William G. Mazýck. *In preparation.*

III Birds of the City of Charleston, by Herbert Ravenel Sass. *In preparation.*

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

THE SUMMER IN RETROSPECT
LOCAL FAUNA
NOTES FROM THE MUSEUM
NATURAL HISTORY SOCIETY

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

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THE CHARLESTON MUSEUM

VOL. 9 CHARLESTON, S. C., OCTOBER, 1913 No. 6

THE SUMMER IN RETROSPECT

Since the last issue of the BULLETIN, in May, the work of the Museum has been more active than is usual in the summer months, and the outlook for the fall and winter is better than ever before.

BUILDING REPAIRS

Under a special appropriation from City Council, a new roof over the entire building was completed in June under the direction of Mr. McIntyre, of the Museum staff. This is probably the largest roof within the city limits, amounting to six hundred squares or sixty thousand square feet. The old roof was removed in sections of such a size that the opening made in the morning could be closed by night. During the five weeks that this was going on there were but six hours of rain and the work was completed without any damage from water. In addition to the actual roofing, all necessary repairs were made to the structural woodwork of the building, new gutters, outlets, cornices, and ventilators installed where necessary, masonry and plaster repointed, and the entire building put into excellent repair.

The necessity for the new roof was due in part to certain original structural defects in the old roof, and in part to neglect during the time the building was unoccupied before it was acquired by the Museum. For a number of years the remodeling

and equipment of the building and the necessarily slow reorganization of the entire Museum absorbed the very limited funds available without producing the exhibition collections which the public naturally expected. It was essential that this preliminary organization should be accomplished and the scientific and educational work established on modern lines before the Museum could fairly ask for a special appropriation for a new roof. In the last two years, however, public recognition of the scope and value of the institution has made rapid strides, and this fact, combined with the urgent necessity of protecting the building, led Council to this further support of our work with the generosity and far-sighted wisdom it has always shown in its development of the Museum.

In July a test section of the steps at the front entrance was built of reinforced concrete. These steps are a difficult problem from the fact that no foundation except sawdust is available. When a satisfactory plan of reinforcement has been designed the remaining sections will be built.

Further work for the fall includes interior and exterior painting to repair water damage due to the old leaks in the roof. When this is done the building will be in a state of excellent repair for the first time since it has been under the control of the Museum. Its maintenance in future will require only moderate expenditures if repairs are made promptly.

THE OLD COLLECTIONS

In July and August the last cases and specimens were removed from the old quarters at the College of Charleston to the Museum building, with the exception of some large archeological casts for which no suitable accommodations are at present available.

The sash from the old cases was used to construct a temporary enclosure in the southwest corner of the main hall, where a large amount of material is stored until final provision can be made for it. Some specimens are no longer suitable for exhibition, while others will make handsome and useful exhibits when properly installed.

WOOD-WORKING SHOP

In September, the carpenter shop was equipped with motor and wood-working machines which will improve the quality and greatly reduce the cost of case construction and other shopwork. These machines have been needed for several years, but the condition of the general account has not warranted their purchase earlier. As soon as the building repairs are completed, case construction will proceed more rapidly than in the past. It will now be a question only of how rapidly funds for the purchase of plate glass and lumber can be made available. The working departments are all well equipped and the entire organization can be concentrated upon installation in the exhibition hall.

THE LIBRARY

Gratifying progress in binding, rearrangement of shelves and cataloging was made in May and June, and a new stock of pamphlet binders was purchased in July in order that this work may be continued.

The development of a library of approximately five thousand volumes with very limited funds has been one of the remarkable achievements of the past ten years. The problems involved in the proper cataloging and arrangement of these books are those of a large library, for our books are confined to subjects treated by the Museum and are of a highly technical character. The reference systems have had to be planned slowly and with great care in order to meet future needs. The great difficulty, however, in the organization of the library has been that the staff has been called upon so constantly for services in other departments that it has been extremely difficult to keep up routine technical work.

Miss Laura M. Bragg, curator of books and public instruction, was taken seriously ill in Yonkers, N. Y., at the very beginning of her vacation. She was absent from the Museum through September and has not fully regained her strength, but is planning the winter's work with her accustomed enthusiasm.

AFFILIATED INSTITUTIONS

The policy of co-ordinating the work of the Museum with that of other institutions doing scientific work is bearing abundant fruit. The Medical College of the State of South Carolina, which fostered the Museum from 1827 to 1850, has again been affiliated with it since 1911, when arrangements were made for its department of physiology and embryology to use the laboratories, classrooms, and collections of the Museum. The Museum has had the pleasure of co-operating with the Medical College in securing funds for a new college building to be built near both the Roper Hospital and the Museum. We congratulate our sister institution on its remarkable development in the past eight months and we look forward to mutually helpful co-operation in the future.

Another affiliated institution, the College of Charleston, is anticipating new activities in the coming year. It has announced a special course preparatory to medicine and consisting for the present of one year of biology, chemistry, physics, and a modern language. This course is expected soon to be extended to two years. It will utilize the collections of the Museum to a larger degree than in the past.

P. M. REA.

LOCAL FAUNA

The Stilt Sandpiper in South Carolina.—During the summer of 1912, while spending a few weeks on Pawley's Island, twenty miles from Georgetown, S. C., my brother and I made several interesting observations; but saw nothing of importance until the afternoon of August 22, when, while shooting on the back beach at the center of the Island my cousin, Mr. C. P. Webber, killed a Stilt Sandpiper (*Micropalama himantopus*). The bird is a female in winter plumage. When shot it was flying low over the bushes in a flock of about twenty Yellowlegs. The spot where the bird was killed is about two hundred yards from our house. Mr. A. T. Wayne, in his "Birds of South Carolina," says of the Stilt Sandpiper: "This rare species is included on the

authority of Dr. Bachman, who appears to have taken many specimens near Charleston. * * * * During the past twenty-five years I have devoted much time and study to the Limicolae, but as yet I have not taken a specimen of this rare bird." The present specimen is in the Charleston Museum (Spec. No. 7171).

—E. BURNHAM CHAMBERLAIN.

New Migration Records for South Carolina.—The following notes are among the more interesting of my recent bird records.

Red-throated Loon.—It is not unusual to see a Loon or Great Northern Diver (*Gavia immer*) in the late spring, but its near relative, the Red-throated Loon (*G. stellata*)—a rare bird in these waters—has never before been reported later than March. On May 18, 1913, I saw one of these birds in the Sullivan's Island Cove. There is no doubt as to the correctness of my identification as I am well acquainted with the species.

Virginia Rail.—On September 10, 1913, while walking along the approach to the railway bridge which crosses the Ashley River at Drayton Station, a Rail of this species (*Rallus virginianus*) flushed from the marsh near at hand. This is the earliest arrival record for this winter visitant.

Ricebird; Bobolink.—A couple of years ago an extremely early migration record was turned in for the Ricebird (*Dolichonyx oryzivorus*)¹ which brought down upon the head of the observer some severe criticisms as to his ability to recognize this well-known species. The current year has brought forward two more arrival records from widely separated localities. These, when taken in connection with the 1911 record, should convince even the most skeptical that the Ricebird arrives in small numbers much earlier than was formerly supposed. The records in question are for July 14, 1911, and July 14 and 16, 1913. The earliest record previous to this time was August 11.²

Vesper Sparrow.—On October 5, 1913, at Hampton Park, I saw my first Vesper Sparrow (*Pooecetes gramineus*) of the season. This is the earliest migration record for this species.

¹ BULL. CHAS. MUS., VII, 1911, 51.

² Birds of South Carolina, CONTR. CHAS. MUS., I, 1910, 107.

Worm-eating Warbler.—On October 10, 1911, I made an extremely late record for this Warbler (*Helmitheros vermivorus*)¹. On October 11, 1913, in the same spot and under nearly the same conditions, another was seen. This would seem to indicate that this species remains with us about two weeks longer than any previous records would lead us to believe.—FRANCIS M. WESTON, JR.

A Week on Bull's Bay.—On June 13, 1913, I started on a trip to Bull's Bay with Mr. Howard Cleaves of the Museum of the Staten Island Association of Arts and Sciences.

We drove as far as Mr. Arthur T. Wayne's, near Mt. Pleasant, and then took a launch to Bull's Island where we arrived late in the afternoon. On the trip down and during the first day of our arrival on the Island we saw about thirty-five species, among which was a belated Red-breasted Merganser, and many Black Skimmers and Least Terns, which two species were common during the trip.

On the second day we saw about nineteen species, the Dowitcher being an interesting addition to our list. We also found Willets, Least Terns, Wilson's Plovers, and a Night Hawk breeding.

On June 15 we went to Vessel Reef where we took many photographs and motion pictures of Royal Terns breeding. There we added to our list the Laughing Gull (adult and immature plumage), Cabot's Tern (three pairs breeding), Wilson's Petrel (near Bird Bank), and Sanderling. The Laughing Gull has not previously been recorded in South Carolina in June, and Cabot's Tern is an exceedingly rare migrant which had not been known to breed here in recent years.

We visited also Cape Romain and returned the way we came, covering several branches of bird photography thoroughly, and getting many interesting photographs and motion pictures of birds nesting and in flight.

On the entire trip we recorded about forty-four species, mostly water birds.—CASPAR CHISOLM.

¹ BULL. CHAS. MUS., VII, 1911, 51-52.

NOTES FROM THE MUSEUM

Two valuable collections of implements from the stone age have been presented to the Museum by Mr. H. W. Seton-Karr of London. Mr. Seton-Karr visited the Museum last spring and most generously offered to contribute one case of material for the archeological exhibits. The first instalment came in June and consisted of stone arrows, saws, and knives collected in Egypt from the site of the neolithic villages north of the Fayûm. Recently a box of flint implements from India has been received. Both collections were personally gathered by Mr. Seton-Karr. They have been temporarily installed in one of the table cases on the north side of the main hall.

Mr. George L. English has presented, through Dr. D. S. Martin, a box of minerals from Port Arthur, Wyoming, and other localities. Mr. English's gifts to the geological collection have been frequent and valuable.

A nearly complete set of the *Journal of Morphology* has been added to the Museum library, the gift of the Wistar Institute of Anatomy and Biology. The library will subscribe to future volumes.

An important contribution to the herbarium has been made by the University of Pennsylvania, through Mr. Francis W. Pennell. This consists of a set of specimens of Agalinanae, comprising most of the species of the Atlantic coastal plain east of the Mississippi and illustrative of Mr. Pennell's paper in the *Bulletin of the Torrey Botanical Club* for August on the species of this area. Mr. Pennell visited the Museum about a year ago and collected in the vicinity.

A small collection of butterflies and moths has been given to the Museum by Mr. Walter R. Bacot.

Hon. H. W. Mitchell has presented to the library a series of Edward Knobel's plates of wild animals.

Dr. D. S. Martin, honorary curator of geology, is expected to return to Charleston in November for the winter.

Mr. L. W. McGrath, instructor in physiology and zoology, has spent two months of the summer doing research work at the University of Chicago.

Miss Laura L. Weeks, who was obliged by ill health to leave the staff in the spring of 1912, has resumed her old position as secretary to the director, succeeding Miss Rena Rowell who held the position during the interim.

Miss Harriet E. Coffin has been appointed assistant in the library for the coming year.

Mr. Edward A. Hyer has gone to New York to study taxidermy under Mr. Carl E. Akeley at the American Museum. Mr. Hyer is a member of the Natural History Society and has for several years assisted the Museum in the preparation of bird skins.

NATURAL HISTORY SOCIETY

Section B held its first meeting of the season on October 16th. The hour was devoted to discussion of the birds and insects observed by various members during the summer, and to study of the common autumn migrants. Miss Bragg conducted the class.

Section A will meet the first Thursday of November. This will be the annual business meeting of the section. Officers for the ensuing year will be elected and dues are also payable. Arrangements for the Thanksgiving Day field trip will be announced. Miss Bragg will then speak upon the subject, South Carolina Birds at Home in Other Lands. This will serve as an introduction to a study of the more northern and southern life of local birds, which the Society is planning to carry on this winter.

The Charleston Museum

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BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

THE STONE AGE EXHIBIT
LOCAL FAUNA
NATURAL HISTORY SOCIETY

The Charleston Museum

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 9 CHARLESTON, S. C., NOVEMBER, 1913 No. 7

THE STONE AGE EXHIBIT

Since the issue of the last number of the **BULLETIN** the archeological material presented by Mr. H. W. Seton-Karr, illustrative of the Stone Age in India and in Egypt, has been installed in one of the temporary table cases now placed on the north side of the main hall near the South Carolina Game and Land Bird Collection. The exhibit includes also material presented last winter by Dr. D. S. Martin, representative of the Stone Age in Europe. The whole forms an interesting series which will be particularly helpful to teachers of ancient history as well as to the general public.

The Stone Age is the name applied to that period in the development of man when all his weapons and utensils are formed of either stone, horn, or bone. The first evidences of man's existence show him in the Stone Age, yet the term is without chronological significance, as races still exist which have not developed beyond its limitations. The natives of Tasmania, the last of whom died only in 1876, were examples of the most primitive type of the Stone Age. Their implements were of roughly chipped stone, to the careless eye merely broken rocks. Even the bow and arrow was unknown to them, a club serving as their chief weapon.

The implements presented by Mr. Seton-Karr, and exhibited as belonging to the Stone Age in India, are of this simple Tasmanian type, though the work of a people living thousands of years before the Christian era.

The Stone Age is commonly divided into the Paleolithic period, characterized by rough and unpolished implements; and the succeeding Neolithic in which the workmanship is of a more finished type, knives and axes, for instance, being ground and polished, and arrow and spear heads carefully shaped and pointed.

PALEOLITHIC PERIOD

Paleolithic man of the most unskilled type produced the rudely flaked implements exhibited in the India group. Here are stones flaked for use as knives and axes. No provision is made for handles. One side is flaked as the cutting edge and the other roughly shaped to fit the hand.

The Paleolithic period has been most fully studied in Europe. It dates back to a time when the shape of the continent differed greatly from its present conformation. The climate was much colder, man lived usually in caves or in the shelter of overhanging rocks and his bones are found on the floors of caves in association with those of the mammoth, reindeer, rhinoceros, and bear, on which he preyed. The implements found with these remains include rude stone harpoon, spear, and arrow heads; knives and axes. Sewing was practiced, as evidenced by needles of bone; but no pottery was made until the close of the period. Carvings on bone and ivory are frequent; in them are found the highest expression of Paleolithic culture. Popularly this period in Europe is known as that of the Cave Man.

The Paleolithic period is represented in the exhibit of the Stone Age in Europe by a number of good examples. An unfinished flint axe from Broom Hill, and a flaked but unchipped flint knife from Thetford, England, are characteristic, as are also the unchipped knives from Toome Lough Neagh, Ireland. Representative of the bone remains of the caves are the reindeer and bear teeth from Laugerie Cavern.

NEOLITHIC PERIOD

The Neolithic period in Europe followed the Paleolithic, probably not through the development of the Cave Man but by the immigration of a higher type of man. The climate and fauna of Europe had then become practically as at present. The mammoth was no longer known. Conditions of life were less severe. Neolithic man preferred to build him a crude house in the open, or on piles in some shallow lake, rather than dwell in caves. He domesticated the dog and horse and practiced a rude type of agriculture; he was familiar with the arts of weaving and pottery manufacture, and had learned to mine flint for his implements. Old shafts have been discovered containing deer horns which were used as picks; these shafts also served as factories for implements. In England the dead were buried in long barrows or mounds.

The Neolithic period in Europe is represented in the exhibit by the fine arrow points from Rudston and Scambridge, Yorkshire, England. Of the arrow heads from Antrim, Ireland, one is carefully flaked and chipped while the other is flaked but only partially chipped, evidently an unfinished specimen. Especially interesting are prongs of the reindeer, horses' teeth, and bone chisels, all from the Lake Dwellings in Switzerland.

But of more finished workmanship than anything which the European exhibit presents are the finely chipped implements from the Neolithic villages of the Fayum in Egypt. The flint saw here exhibited is one of the finest known specimens of the work of the Stone Age, and the knives and arrow points are scarcely inferior. Comparison with the implements of the American Indian of this same cultural period will be facilitated by the installation of the North American Indian Collection during the next month.

LAURA M. BRAGG

LOCAL FAUNA

Autumn Migration Notes for 1913.—The following notes are my latest migration records which extend the previously established dates for South Carolina birds.

Greater Snow Goose.—On October 27, 1913, Mr. Lucian L. Porcher saw a flock of four Geese on his plantation near Mt. Pleasant, S. C. On the next day, October 28, Mr. S. C. Venning saw one feeding in a pea field in the same locality, and was able to ride up to within a few yards of it before it took flight. This last specimen was shot by a negro in the same field later in the day. While it is impossible to tell the Greater Snow Goose (*Chen hyperboreus nivalis*) from the Lesser (*C. h. hyperboreus*) while at large, the probability is that these Geese were the Greater as this variety is known to occur regularly in the interior of the State,¹ while the Lesser is western in its distribution. Although it is possible that Snow Geese may have been taken occasionally by sportsmen, the above is the only authentic record for this species in the coast region since the days of Audubon and Bachman.

Lesser Yellowlegs.—Mr. A. T. Wayne in his Birds of South Carolina² says: "I have never seen this species in the winter months." but gives no specific date for its departure. In view of this my record for November 3, 1913, when I saw a single individual of this species (*Totanus flavipes*) in a marsh pond at the Navy Yard, may be of interest. While Yellowlegs may or may not be found here after that date, it is at least, something definite to work from.

Chimney Swift.—Up to the fall of 1913 the latest record for the occurrence of this species (*Chaetura pelagica*) was October 28.³ A few birds were seen on the afternoon of October 29 of this year, but by October 30 all had apparently gone south. While passing through Mt. Pleasant, S. C., on the afternoon of November 5 Mr. E. Burnham Chamberlain and I saw a single Chimney

¹ Wayne: Birds of South Carolina, CONTR. CHAS. MUS., I, 1910, 23.

² Ibid, 53.

³ Ibid, 97. BULL. CHAS. MUS., V, 1909, 23.

Swift flying about over the old picnic grounds in the southern part of the town.

Barn Swallow.—According to the records of the Survey, the Barn Swallow (*Hirundo erythrogaster*) leaves this region about the middle of October, and Mr. A. T. Wayne¹ speaks of having seen a belated specimen on October 29, 1906. On December 17, 1912, I saw a single Swallow at the Navy Yard² and again this year I saw one on November 11. On both occasions the bird came near enough to me to be easily and certainly recognized.

White-eyed Vireo.—Although this species (*Vireo griseus*) is known to occur rarely during the winter months, records are always of interest. On November 17, 1913, I watched one for some time in the woods at the Navy Yard.

Black and White Warbler.—Although Mr. H. R. Sass has recorded this species (*Mniotilta varia*) as accidental as late as December 1, Mr. A. T. Wayne³ sets November 1 as marking the close of its visit to this region. On November 5, 1913, Mr. E. Burnham Chamberlain and I saw one of these birds in the dense jungle on the Isle of Palms.

Brown Creeper.—This species (*Certhia familiaris americana*) has never before been recorded earlier than October 17.⁴ However, there must have been a more or less general southward movement at an earlier date this year, for I saw a single specimen at the Navy Yard on October 14, while Mr. B. Rhett Chamberlain noted one at Hampton Park on the same day.

Golden-Crowned Kinglet.—The Survey records for this fall extend by one day the term of residence of the Kinglet (*Regulus satrapa*) in the coast region. On October 13, 1913, I reported several from the vicinity of Mt. Pleasant, S. C. The earliest previous record was October 14, 1911.⁵—FRANCIS M. WESTON, JR.

Notes on the Breeding Habits of the Ruby-throated Hummingbird.—On the evening of July 10, 1911, I saw a female Humming-

¹ Birds of South Carolina, CONTR. CHAS. MUS., I, 1910, 139.

² Auk, XXX, 1913, 276.

³ Birds of South Carolina, CONTR. CHAS. MUS., I, 1910, 148.

⁴ Ibid, 189.

⁵ BULL. CHAS. MUS., VII, 1911, 52.

bird (*Archilochus colubris*) alight on a branch of the laurel tree (*Magnolia grandiflora*) in our yard. I thought nothing of this at the time, the bird being fairly common, but later I noticed that the bird lit again and again on the same small branch.

On July 11 I left the city on a twelve day trip and on returning was shown a small nest saddled on the very branch that the female had chosen two weeks before. This branch, about the diameter of one's little finger, was twenty feet from the ground and scarcely ten feet from the window of a neighboring house. From this time on I kept a close watch on the actions of the bird. The male bird was not seen about the nest at any time, the work of construction being left entirely to the female. On the 23rd, the nest was outwardly complete with the exception of the top, which was ragged and uneven.

I watched the female as she flew to and from the nest, bringing small pieces of material that looked like cotton, but later proved to be plant pith, lichens, and other downy substances. The lichens were fastened in place on the outside of the nest by the aid of glutinous saliva from the bird's mouth, which after drying has the appearance and texture of a spider's web. The pith was placed on the inside of the nest and tamped down by the bird's turning around and around and apparently treading with it's feet at the same time, giving the bird a very comical appearance during the operation. A few days later the female commenced to set and her actions during incubation were very interesting. She never left the nest if it was raining, but settled down closely, holding her head back and her bill pointing upward.

The Hummingbird guarded her nest closely at all times, and allowed no bird to come near it. Once she left the nest and drove out of the tree an English Sparrow that had been so bold as to light nearby. A day or two later she chased a June bug that unwittingly flew almost into the nest. One evening another female Hummingbird appeared and the rightful owner, when she watched the intruder circle the nest and fly off, twisted her neck around as an owl does.

At this important stage of proceedings I was unfortunately forced to leave the city again, so that I never got a chance to see the young hatch, to watch the interesting if somewhat disgusting method of feeding by regurgitation, and finally to see the first efforts of the young to strike out for themselves.

Late in September when I returned the Hummingbird and her family had flown and there remained only the small nest, worn and weather-beaten, to show how fortunate even a city bird observer may be.—E. BURNHAM CHAMBERLAIN.

Yellow-bellied Sapsucker.—An exceptionally early record for this species (*Sphyrapicus varius*) was obtained on October 5, when my brother and I watched an adult in worn plumage in Magnolia Cemetery.—B. RHETT CHAMBERLAIN.

Summer Tanager.—On September 22, 1913, I observed a single male of this species (*Piranga rubra*) near Drayton Station, about twelve miles from Charleston.—B. RHETT CHAMBERLAIN.

NATURAL HISTORY SOCIETY

Both sections of the Natural History Society have held most successful meetings during the month. Section A met on November 6. The following officers were elected for the coming year: president, Miss Laura M. Bragg; vice-president, Miss Annie L. Sloan; secretary, Miss Carrie T. Pollitzer; treasurer, Miss Laura L. Weeks. The treasurer's report for the past year showed the Society to be in excellent condition financially. An appropriation of fifty dollars was voted for the use of the executive committee in pursuit of the scientific work of the Society. A similar appropriation made two years ago had allowed the purchase of insect-proof metal cases for bird skins and for the butterfly and moth collection, as well as many smaller things. These cases were indispensable if the collections made by members of the Society were to be preserved, and are proving most satisfactory.

Miss Bragg spoke at both meetings this month. In Section A she introduced the new plan for bird work during the year, and spoke particularly on the subject of South Carolina Birds in and on the way to New England.

In furtherance of the plan for studying local birds as seen in other countries, the following subjects have been assigned for study: Arctic Regions, Alexander Sprunt, Jr.; Bird Rock and the mouth of the St. Lawrence, B. Rhett Chamberlain; Florida, Ellison A. Williams; Bahamas, Caspar Chisolm; West Indies, F. M. Weston, Jr.; Panama, E. Burnham Chamberlain; South America, Miss Mabel Webber, Miss Annie L. Sloan, John Bachman Chisolm, and Charles Colson.

The annual Thanksgiving Day field trip for Section A will this year take the form of an automobile ride to the ruins of Yeaman Hall on Goose Creek. There a short meeting will be held at which Director Rea will speak on The Geology of the Region about Charleston. An interesting bluff containing fossils is located near the Hall and will be studied. Birds, plants, and insects will also be observed as usual.

Section B elected its officers on November 13, as follows: vice-president, Robert Taft; recording secretary, Camilla Gourdin; corresponding secretary, George Howell. The election of the vice-president was closely contested and most exciting. The president and treasurer of Section A are ex-officio president and treasurer of Section B. A large number of new members were received. The subject of the meeting was, "Our Permanent Residents among the Birds." A particular study of these birds will be made by Section B until each member is familiar with the sixty-nine permanent breeding birds known in South Carolina.

An unusually delightful excursion is anticipated by members of Section B for the first Saturday in December. This will be a launch trip to Dewees Island for the purpose of studying our winter water birds. New members should not fail to come into the Society before this trip.

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PAUL M. REA

OTTO KUNTZE
LOCAL FAUNA
NATURAL HISTORY SOCIETY

Volume IX, Number 8

DECEMBER, 1913

The Charleston Museum

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OTTO KUNTZE¹

Carl Ernst Otto Kuntze was born at Leipsic, Germany, June 23, 1843. His early education was somewhat limited. He attended the "Realschule" of his native city until he was fourteen years of age, leaving it just before the completion of his course. Later he studied for a short time at a commercial school.

His interest in botany began when he was a mere boy, his botanical teacher in those early years being Carl Otto Bulnheim, who was instructor in natural science in the Leipsic schools. Before he left that city, young Kuntze had collected nearly all the species of plants that had ever been found in the vicinity, and had accumulated the materials for his first book, a pocket flora of the neighborhood of Leipsic, which was published in 1867.

Meanwhile he had gone to Berlin, at the age of twenty, and had spent three years there as a clerk, utilizing all of his spare time for the collection of the plants of the region, often in company with the well-known Berlin botanists Alexander Braun and Paul Ascherson. In 1867 appeared not only the pocket flora already mentioned, but a revision of the German brambles (*Rubus*), a group of plants in which he had taken particular interest. The following winter was spent in travel through Italy and southern France.

¹NOTE: The New York Botanical Garden has given to the Charleston Museum the European section of the Otto Kuntze herbarium. Since the Museum has hitherto had only a small and scattered representation of European plants this extensive collection forms a most important addition to the herbarium.

The account of the interesting life and work of Otto Kuntze has been prepared for the BULLETIN by Dr. Barnhart of the New York Botanical Garden at the request of the Museum.
—EDITOR.

In the year 1868 he established at Leipsic a factory for the manufacture of volatile oils and essences, which met with phenomenal success. Only five years later, in 1873, he accumulated a sufficient fortune to enable him to retire from business and devote the remainder of his life to travel and the study of the natural sciences.

In February, 1874, he started on his first journey around the world, sailing from Bremen to the island of St. Thomas in the West Indies; thence he visited Porto Rico, Barbados, Trinidad, Venezuela, Colombia, Panama, and Costa Rica. On account of a severe attack of fever he returned to Panama, and as soon as he was able sailed for New York, where he landed July 28. While in the United States he collected in Massachusetts, New York, New Jersey, Pennsylvania, Ohio, Illinois, Missouri, Kansas, Nebraska, Colorado, Wyoming, Utah, Idaho, and California, and sailed from San Francisco, November 16, for Yokohama. Leaving Japan in January, 1875, he visited Hong Kong, China, Macao, Annam, Cochin China, Siam, and Java, where he remained nearly five months. In October he went by way of Singapore, Johore, Penang, and Burma to Calcutta; the months of November and December were spent in various parts of India; and on the last day of the year he sailed from Bombay for Europe, by way of Aden and the Suez Canal. On this two-years' journey he made extensive ethnological collections for the Völkermuseum in Leipsic, and prepared more than 7700 "numbers" of dried plants.

Essentially a self-taught scientist up to this time, he began at the age of 33 years to avail himself of the benefits of university training. From 1876 to 1878 he studied at Leipsic and Berlin, spending two months in the summer of 1877 in the Carpathian mountains, and received the degree of Ph. D. from the University of Freiburg in June, 1878. His dissertation was on *Cinchona*, the genus of South American trees that produces "Peruvian bark" and is the source of quinine. In the following year he published his "Methodik der Speciesbeschreibung und Rubus," in which he utilized his knowledge of the genus *Rubus* to illustrate the way in which species ought to be described.

In 1881 appeared in book form his account of his journey around the world, and in 1883 his "Phytogeogenesis," in which he elaborated his views upon the origin of plant life upon the earth. His vast botanical collections of 1874-76 meanwhile re-

mained unstudied, and in 1884 he devoted his attention to them. For six years he worked at this task, and in the solution of the problems that came up in connection with it. The years 1884 to 1887 were spent at Berlin, with a visit to eastern Asiatic Russia in 1886; during the winter of 1887-88 there was a brief vacation in the Canary Islands, and the years 1888 to 1890 were spent at Kew, England, the greatest botanical establishment in the world, where the vast undertaking was completed.

Nomenclature, that nightmare of natural science, was particularly troublesome to botanists at about this period. Desirous of assigning to his plants the names they ought to bear, yet finding botanical nomenclature in what appeared to him a very unsatisfactory condition, he prepared for his own guidance a very elaborate and detailed code of nomenclature, and revised in accordance with this code the names not only of the plants he had himself collected, but of all other plants which seemed to him to be masquerading under "wrong" names. As he proceeded, therefore, his work expanded from a mere list of the plants he had collected, with descriptions of the novelties, until it was virtually a revision of the names of all known flowering plants, and when the two large volumes appeared, in 1891, they bore the appropriate title "*Revisio generum plantarum*."

The zeal of the reformer over-reached itself. The deliberate proposal to alter some 25,000 plant names made botanists everywhere gasp (figuratively, at least), and made quite impossible the general acceptance of Kuntze's code, however carefully he had elaborated it, and however reasonable it might have appeared if he had not emphasized its consequences. In fact, reasonable reform of botanical nomenclature has not even yet fully recovered from the blow given it by the publication of Kuntze's *Revisio* more than twenty years ago.

On the 11th of November, 1891, about a week after the publication of his monumental work, Kuntze sailed from Hamburg for South America, for a much needed vacation, and arrived in Montevideo on the 7th of December. He spent the whole of the following year collecting in the Argentine Republic, Chile, Bolivia, Paraguay, and southern Brazil, and upon his return arrived at Berlin January 3, 1893. He spent the next few months in preparing for publication the first part of a third volume of his *Revisio*, which was devoted wholly to a detailed discussion of everything relating to botanical nomenclature that had appeared since the first two volumes were issued.

The first four months of 1894 were occupied by a visit to southern Africa. In January and February he was in Cape Colony with a brief side-trip to the Orange Free State and the Transvaal; in March he was in Natal, with another brief visit to the two republics; he returned by way of Suez, stopping in Mozambique and at Zanzibar.

During the winter of 1895-96 he removed from Berlin to a villa at San Remo, Italy, which was his home for the remainder of his life. Here he kept his botanical library and herbarium, and continued work along his favorite lines until the end. In 1898 the third volume of his *Revisio*, including a report upon the plants collected upon his second visit to South America and his African trip, was completed. His most important later work was in collaboration with Tom von Post, of Upsala, Sweden, upon his "*Lexicon generum phanerogamarum*," a useful little handbook issued in 1904. In that year Kuntze took his second and last journey around the world, in the reverse direction from the earlier one, and by a more southerly route. He visited Ceylon, New South Wales, Tasmania, New Zealand, Samoa, Hawaii, and the United States, sailing from New York for home on the 10th of September. In 1905 he attended the international botanical congress at Vienna, and appeared at one of the sessions devoted to nomenclature long enough to denounce it bitterly as a body lacking proper authorization for the task upon which it was engaged. The following year he was in poor health, and he died at San Remo, January 28, 1907.

Besides the books mentioned in the course of this sketch, Kuntze was the author of various pamphlets, and contributed from time to time to numerous periodicals. In spite of his important labors as a plant collector and a taxonomic botanist, he will doubtless be remembered chiefly because of his contributions to the vexed questions of botanical nomenclature. His views did not prevail, nor is there any probability that they will ever be accepted; yet the importance of his contributions to the discussion of the subject can not be overlooked. After his death, his herbarium became the property of the New York Botanical Garden; and the European portion of it has now found a resting-place in the Charleston Museum.

JOHN HENDLEY BARNHART.

LOCAL FAUNA

Chlorippe alicia.—On May 25, 1913, I took a specimen of the Alicia at Hampton Park, Charleston, S. C. The range of this butterfly is given by Holland¹ as "the Gulf States from Florida to Texas." As little has been published on the butterflies of South Carolina in recent years, the taking of this specimen probably extends the heretofore recorded range of the species. The specimen is of a female and is in my collection.—E. H. JENNINGS, JR.

Solitary Sandpiper.—On September 21, 1913, during a forty-mile gale from the southwest, three of these sandpipers (*Heldromas solitarius*) were seen drifting across the lower part of the city. While too high in the air for any distinctive markings to be seen, their unmistakable whistle gave them away. This species is an addition to an already long and interesting list of city birds.—FRANCIS M. WESTON, JR.

Recent Bird Notes.—The following bird notes contribute additional data to the Museum's survey.

Winter Wren.—On the morning of September 22, 1913, I saw a Winter Wren (*Nannus hiemalis*) in St. Andrews Parish. This is seven days earlier than Mr. Wayne records it.

Crested Flycatcher.—While passing through Magnolia Cemetery on October 13, 1913, I made a late record for this flycatcher (*Myiarchus crinitus*). This is four days later than the latest previous record, made on the P. M. A. Campus in 1909.

Red-backed Sandpiper.—On November 5, 1913, on the eastern end of the Isle of Palms, I shot a male Red-backed Sandpiper (*Pelidna alpina sakhalina*). On dissection the bird's stomach was found to contain fifty-two very small conchs, a few finely crushed pieces of shells and a small amount of sand. Of these conchs fifty-one were *Odostomia impressa*, a species common on oysters.

¹ Butterflies, 1905, 190, pl. XXIII.

Double-crested Cormorant.—Perhaps the most interesting event of a very pleasant day spent by Section B on a field trip to De-wees Island on December 6, was the taking of a female Double-crested Cormorant (*Phalacrocorax auritus*). The bird was observed in the narrow creek behind the Isle of Palms and on the approach of the boat dove repeatedly. The failure of the cormorant to take wing was unexplained at the time. After being watched for a while by the party the bird was shot as it came up under the right bank of the creek, gasping badly.

After removing the skin I dissected the bird and found that its inability to fly was probably due to a kind of tumor formed against the upper back, an outgrowth of the left lung. The stomach also was in a diseased state. It contained eight small fish, mullet and mudfish, varying in length from two to six inches, and a large number of round worms, evidently parasites.¹ The unmounted skin of this specimen is preserved in the Charleston Museum.—E. BURNHAM CHAMBERLAIN.

Primary Cancer in the Lung of a Wild Double-crested Cormorant.—On December 6, 1913, I received from the Charleston Museum a dressed Double-crested Cormorant. Upon examination I found that the right thorax was occupied by an ovoid tumor, about the size of a pullet's egg, arising from the lower half of the lung of this side, and, upon microscopical section, proving to be a cancer.

The possibility of the origin of this tumor from some parasitic or bacterial infection of the lung immediately suggests itself, but careful examination failed to reveal any such features. Invasion of other parts of the body by the cancer was not found.

The existence of a cancer in any wild animal is a subject of interesting speculation and a full report of this case will probably be given to one of the scientific journals.—KENNETH M. LYNCH, M. D.

Contents of Stomach of Double-crested Cormorant.—In the stomach of the Double-crested Cormorant recorded above there were

¹ The body of this cormorant was sent for examination to Dr. Kenneth M. Lynch, professor of pathology in the Medical College of the State of South Carolina; the worms from the stomach were referred to Mr. L. Wm. McGrath of the Museum staff.

found numerous round white worms and some murky fluid. Upon examination of the worms, both macroscopically and microscopically, they were found to belong to the phylum *Nemathelminthes*, to which are referred most of the worms parasitic in man and vertebrates in general. The worms proved to be of two kinds—large, fairly thick individuals over an inch in length, and small, threadlike ones less than a half inch long. The former were identified as *Eustrongylus tubifex* and the latter as *Filaria (histrichis?)*. *Eustrongylus* occurred in much greater numbers than *Filaria*. Both of these worms are common parasites in the digestive tracts of water-birds, being taken in with the fish they eat. Certain fishes are intermediate hosts of these parasites.

The fluid revealed fragments of partly digested tissues and a number of eggs. These eggs could not be positively identified, but were undoubtedly those of the parasitic worms.—L. WM. McGRATH.

Brown Creeper—A Correction.—My statement in the last issue of the BULLETIN¹ that Mr. B. Rhett Chamberlain had seen a creeper at Hampton Park on October 14 is an error. The bird was in Mr. Chamberlain's yard in the city, and the record is of particular interest on that account.—FRANCIS M. WESTON, JR.

NATURAL HISTORY SOCIETY

Each section of the Natural History Society has held a meeting and taken a field trip since the last issue of the Bulletin. Section A met on December 4; South Carolina Birds on Bird Rock and South Carolina Birds in the Arctic Regions were the subjects treated. Mr. B. Rhett Chamberlain gathered the information for the study of Bird Rock, and Mr. Alexander Sprunt Jr. prepared a carefully worked out and extensive paper on the Arctic Birds. Both subjects, however, were presented by Miss Bragg. A series of sixteen colored lantern slides has been purchased, illustrating the habitat groups of birds in the American Museum in New York. Several of these were used and more will be utilized at the January meeting.

The January meeting of Section A will be held the second Thursday of the month as New Year's Day comes on the first

¹ p. 61.

Thursday. This will bring the Section B meeting on the third, January 15.

Mr. Ellison A. Williams will speak at the Section A meeting, on South Carolina Birds in Florida, and Mr. Caspar Chisolm on South Carolina Birds in the Bahamas. Both of these subjects are fascinatingly interesting, treating as they do of some of our most picturesque birds. The habitat group lantern slides for these localities are particularly brilliant. The Pelicans of Florida and the Flamingos of the Bahamas are, once seen, never to be forgotten.

The Thanksgiving Day field trip for Section A was voted a success in spite of the fact that it was necessary to walk the last mile before reaching Yeaman Hall. Tickets for the next trip have been bought out. This will be a launch trip to the further or eastern end of the Isle of Palms on January 10. The launch Kvik V will leave with the party from Custom House wharf at 9.30 A. M. Registration is in order for the next launch trip which will come early in February. There will be no Washington's Birthday trip this year. The Society as a whole has outgrown the available water transportation facilities. In consequence the experiment will be tried of having more frequent trips with smaller parties. Much more and better work can be done in parties of twenty than of sixty. Every member of the Society will be able to secure a trip sometime in February if registration is made not later than the January meeting.

Section B went to Dewees Island on December 6. Twenty-six water and several land birds were observed. Many different species were numerous enough to allow even the beginners in bird study to become familiar with them. Nearly all the children took notes on the birds observed. At the Section B meeting the following Thursday, Miss Bragg exhibited specimens and talked about these birds. Then sides were chosen for a new game, called Bird-match, which is played as is the old-fashioned spelling-match. This game is to be continued at the January meeting. The two winners of the first match will be leaders of the second, and the final winners of the second match will receive as a reward one of Reed's Bird Guides, either land or water as desired. All questions asked in the game will be about the birds seen on the Dewees Island trip. Those who were not present at the last meeting should surely be there for the January contest.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distribution, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

Volume I of this series began in April, 1905, and is complete in 5 numbers. Subsequent volumes consist of 8 numbers each. A title page and index to the first five volumes was published in the issue of December, 1909.

Sent prepaid to any address for 25 cents a year. Single copies 5 cents each.

(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I Birds of South Carolina, by Arthur Trezevant Wayne.
Pp. XXI + 254. Price: paper, \$2.75; cloth, \$3.25.

II Catalog of the Mollusca of South Carolina, by William G. Mazjck. Pp. XVI + 39. Price: paper, 50 cents.

III Birds of the City of Charleston, by Herbert Ravenel Sass. *In preparation.*

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

REPORT OF THE DIRECTOR OF THE MUSEUM
FOR THE YEAR 1913

Volume X, Number 1

JANUARY, 1914

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZYCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
NATHANIEL W. STEPHENSON.....*Art*
EDWARD R. MEMMINGER.....*Fungi*

Curator of Books and Public Instruction

LAURA M. BRAGG

Instructor in Physiology and Zoology

L. WM. MCGRATH

Secretary to the Director

LAURA L. WEEKS

Assistant in Library

HARRIET E. COFFIN

THE CHARLESTON MUSEUM was organized in March, 1773, by the Charles Town Library Society. In 1815 it was transferred to the Literary and Philosophical Society of South Carolina, and in 1828 was deposited in the Medical College of South Carolina. In 1850 the Museum was transferred to the College of Charleston, where it was known as the College of Charleston Museum. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....\$ 10	PATRONS.....\$ 500
SUSTAINING MEMBERS.... 25	BENEFACTORS..... 1000

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 10 CHARLESTON, S. C., JANUARY, 1914 No. 1

REPORT OF THE DIRECTOR OF THE MUSEUM FOR THE YEAR 1913

The past year is the one hundred and fortieth in the history of the Museum, and the tenth under the present administration. It is undoubtedly the most successful in the long and honored history of the institution and comes to its close with better prospects for the future than ever before.

Few persons aside from the Museum staff can appreciate the difficulty of the reorganization which has been effected in the past decade. In 1904 the Museum occupied about one half of the main building of the College of Charleston, where it was an adjunct to the department of biology and geology, and dependent for its care upon the spare time of the professor in that department. The sole financial support was an appropriation of \$250 from City Council. Under these adverse conditions, the collections were necessarily deteriorating. The Museum was far more extensive than the needs of the College required, and was contributing nothing to the progress of science or to public education. It was an incubus upon the College and an unprofitable investment for the City, yet it contained material of great potential value for the instruction and recreation of the people, and collections which are priceless data of science.

Today, the Charleston Museum occupies one of the best public buildings of the city, is maintained jointly by City Council and the people of Charleston, is affiliated with the public schools and colleges, maintains varied lines of scientific and educational work, and is growing daily in the appreciation of the public. The key-

note of the policy of the Museum is the efficient utilization of its resources for the greatest service to the people.

The accomplishment of this reorganization has involved an enormous amount of technical work in the creation of administrative systems, library, scientific records, shops, laboratories, etc., which are the indispensable equipment of an active museum, but which had to be created from the beginning in this instance. This work, in addition to remodeling the building, which was transferred to the Museum by City Council in 1907, required all the time of the staff and all available funds for three or four years. This was the most critical period of the reorganization, because the work was not of a nature to appeal to the general public. The interest with which the new plans for the Museum were received in the beginning naturally began to wane. Yet, even at this time, a small but growing number of persons was acquiring a new conception of the organization and scope of the modern museum. This class has increased much more rapidly during the last three years, as the various working departments have come into practical operation and the installation of exhibits and their educational use has been extended. The subsequent pages of this report show how much the Museum has grown in the estimation of the public.

THE ONE HUNDRED AND FORTIETH ANNIVERSARY

The one hundred and fortieth anniversary of the Charleston Museum was celebrated by a public reception on the evening of March 28. The receiving party represented the interests allied with the Museum and included Mayor John P. Grace, representing the City of Charleston, and Mrs. Grace; the Hon. John F. Ficken, president of the board of trustees and of the Charleston Library Society, and Mrs. Ficken; the Hon. W. St. Julien Jerve, chairman of the committee on the Museum; Mr. Paul M. Rea, director of the Museum, and Mrs. Rea; Miss Laura M. Bragg, curator in the Museum; Mr. Henry P. Williams, representing the Museum members, and Mrs. Williams; Miss Annie L. Sloan, representing the Natural History Society; Dr. Harrison Randolph, president of the College of Charleston, and Mrs. Randolph; Dr. Robert Wilson, Jr., dean of the Medical College of the State of South Carolina, and Mrs. Wilson; Hon. James Simons, chairman of the board of public school commissioners, and Mrs. Simons.

About eight hundred people attended the reception, which

proved a most happy celebration of the anniversary. The interest of the community was indicated both by the large attendance and by the enthusiastic service of more than one hundred and fifty people on the various committees of arrangement. The Museum is indebted to the Charleston Consolidated Railway & Lighting Company for furnishing the electric current for the evening, to the Electric Supply Company for special wiring, and to the Carolina Floral Company for the loan of palms for decoration.

ADMINISTRATION

No change has been made in the general administrative plans, but a better co-ordination of departments has been attained, and the *esprit de corps* of the staff is one of the strongest assets of the Museum.

In the death of Mr. W. St. Julien Jervey, on December 17, the Museum sustains a loss which can be appreciated more, perhaps, by the director than by other members of the staff, or by the public. As chairman of the Committee on the Museum, Mr. Jervey has always shown a broad and sympathetic grasp of the essential needs of the Museum, and has been ever ready to attend to the details of its business affairs. It is comforting to know that he lived to see so large a measure of success in the reorganization in which he was deeply interested from the beginning.

Changes in the staff include the appointment of Miss Harriet E. Coffin as assistant in the library, succeeding Miss Barbara K. Bragg, who resigned because of ill health. Miss Rena Rowell resigned in July as secretary to the director, and the position was resumed by Miss Laura L. Weeks.

The proper administration of the building requires the services of an additional attendant for the entrance and the main exhibition hall, and it is hoped that during the coming year some means may be found of providing this service.

The director represented the Museum at the eighth annual meeting of the American Association of Museums in Philadelphia, June 3-5, when he was honored by re-election as secretary of the Association.

FINANCES

The receipts and expenditures have exceeded those of any previous year in the history of the Museum. The total receipts were

\$11,634.31 and the expenditures \$10,688.44. The balance carried forward is also larger than in past years and insures rapid progress in installation early in 1914. It is of the greatest importance that the General Account shall carry over each year a balance sufficient to maintain active work until new funds are obtained.

City Council made the usual appropriation of \$4,000 for maintenance. Of this amount \$3,126.25 was expended for salaries, and the remainder for the maintenance expenses of the various departments. The distribution of these expenditures varies little from that in previous years, for it is only by the closest adherence to a minimum budget that so large a work can be maintained with the money available.

The General Account received \$1,290 from fifty-two members and \$1,341.20 from other sources. A list of the members of the Museum is appended to this report. Case construction, installation of collections, and all other permanent improvements are dependent entirely upon the General Account on the fundamental principle that the Museum is the creation of the people of Charleston, its housing and maintenance only being provided by City Council. The membership is thus the fundamental basis of development and should increase from year to year as the service of the Museum to the people grows. The problem of the coming year is to bring the community to a better appreciation of these relations and thus to increase the number of members.

Special accounts include an appropriation of \$4,300 by City Council for building repairs; receipts of \$552.56 from affiliated colleges for the expense of their work in our laboratories, exclusive of salaries; receipts of the Natural History Society, amounting to \$121.50; etc. The work done under these accounts is described later in this report.

BUILDING

It is with the greatest satisfaction and relief that the director is able to report the building in a state of excellent repair. When the building came into the possession of the Museum in 1907, it had been unused, or occupied for temporary purposes only, for several years, and had undergone the general deterioration natural under such circumstances. The expense of adapting the building to museum requirements absorbed so much of the small appropriations of the next three years that the fundamental de-

fects in the roof had to be ameliorated rather than cured. By 1913 the renewal of the roof had become a vital matter for the preservation of the building and the protection of its contents.

The request for a new roof and for other repairs led City Council to make a special inquiry into the condition and needs of the building, the state of development of the educational and scientific activities of the Museum, and the plans for future work. This inquiry was of the greatest value to the Museum, for it aroused public interest and called forth the most gratifying and enthusiastic endorsement of the institution from many persons representing widely varied interests which have been served by the Museum. These letters evinced such sincere and intelligent appreciation of the service we are trying to render that they gave to the staff new courage, and to City Council a public endorsement of its wisdom in developing the Museum as a public institution. The broader understanding thus achieved with both City Council and the people of Charleston is one of the important events of the year and goes far toward establishing the Museum on a permanent basis.

As has been stated, City Council finally appropriated \$4,300 for a new roof, for general repairs necessitated for the most part by leaks in the old roof, and for reinforced concrete steps at the front entrance. The work was done under the able supervision of Mr. James P. McIntyre, of the Museum staff, to whose energy and good judgment are due the excellence of the work and its low cost.

SKYLIGHTS. The month of April was occupied chiefly with work on the skylights. These have given continual trouble since their installation and are still unsatisfactory. The glass was all taken out, the frames inspected and repaired, and the glass replaced, but there are still some leaks which appear to be due to improper construction of the drainage gutters. It is hoped that these can be corrected in the near future.

The necessity of opening the skylights was taken advantage of to install movable cotton curtains under the skylights to modify the light coming into the main hall. These curtains are an important and long-needed improvement, giving a much better diffusion of light and protecting specimens from fading.

Roof. The main work of laying the new roofing occupied six weeks in May and early June, and was accomplished with the loss of but six hours from rain—a remarkably fortunate record. The remainder of June was occupied with work on the

gutters, cornices, and other metal-work associated with the roof, and with general building repairs. The entire building was minutely inspected and put in excellent repair.

The relief and satisfaction in having a real roof in place of a sieve can be appreciated only by those who have lain awake while it rained at night and tried to remember whether books or other objects might have been left under any one of the fifty or more leaks in the old roof, or those who have seen pools of water on the tops of cases or on the floor of the library within a foot of the book stacks. For several years it has been a shop rule that all case tops must be built water-tight.

CONCRETE STEPS. The appropriation provided for concrete steps at the front entrance to replace the old wooden steps which had been unsafe for some time. These steps furnished a difficult problem of construction, because the building stands on made land—made of saw-dust and salt water in about equal proportions. This mixture cannot be depended upon as a building foundation and a system of re-inforcing the concrete of the steps was designed to carry the entire weight on the large pillars of the portico and the piling on which they rest. The work was completed on this plan in October, and it is confidently expected that no trouble from settling will be experienced.

PAINTING. The entire exterior of the building was painted in November. Again we were favored with good weather, not a single hour being lost from rain in four weeks.

The plan of doing the work with our own men proved highly satisfactory and economical. The saving in actual cost as compared with payments to a contractor for the last previous painting was 15 per cent. Allowing for additional work done this year and for painting tackle retained as a permanent asset, the saving by doing the work ourselves is 26 per cent. It is probably safe to say that Mr. McIntyre has accomplished 25 per cent more work under the entire appropriation for repairs than could have been expected on any other plan of procedure. Perhaps the greatest satisfaction, however, arises from our complete knowledge of the quality of all material used and of the work performed.

Three weeks in December were devoted to interior painting necessary to repair damage to walls from leaks in the old roof.

All of this painting may be reasonably expected to wear much longer than the painting done in 1909, because practically all the damage the latter had suffered was due to leaking water.

PLUMBING. In order to reduce minor plumbing repairs as much as possible during the next two or three years, all piping and fixtures were thoroughly inspected and replaced wherever defective. Connections were also made with the new sewer system and the outlets into the tidal drains closed.

SHOP EQUIPMENT

Very convenient space for carpenter work has been gradually fitted up during the past three years, and the need of wood-working machinery for case construction and general work has been stressed in recent annual reports. In August the equipment of the carpenter shop was greatly increased by the purchase of machines for sawing, planing, jointing, shaping, and boring and mortising. The installation of these machines with electric motor and the necessary shafting, belting, etc., was begun in September, but the final adjustments were not made until December.

These machines are well adapted to our work and will increase the quality and decrease the cost of all shop work. This is one of the last of the working departments of the Museum to attain the proper equipment and organization requisite for the present scope of our work. It is expected that case construction will make rapid progress in the coming year.

COLLECTIONS AND INSTALLATION

During July and August the last of the specimens and cases remaining in the College of Charleston, with the exception of the large casts of Egyptian and Assyrian figures, was transferred to the Museum. This releases for the use of the College all but one of the rooms formerly occupied by the Museum, and brings all our material together where it can be cared for more effectively and economically.

BOTANY. In the development of the collections the greatest progress has been made in the department of botany. This is due primarily to the work of Miss Bragg and Mr. Edward R. Memminger, aided by many volunteer assistants.

In addition to her duties as curator of books and public instruction, Miss Bragg has found time to increase the number of specimens in the herbarium 30 per cent, and to do a large amount of other work in connection with the botanical survey. In this

she has had the able cooperation of Mr. Memminger. As honorary curator in the botanical department, Mr. Memminger has given generously of his time and skill in the revision of the old herbaria and the extension of the botanical records of the Museum. His special knowledge of the flora of North and South Carolina, combined with his cheerfulness in work which is often tedious, has been largely responsible for the steady and gratifying growth of the herbarium and for the accuracy of its data.

The Museum received as a gift from the New York Botanical Garden the European Section of the Otto Kuntze herbarium. This extensive collection gives to the Museum a large representation of European plants which it could not have hoped to acquire and which will ultimately be of much value for general studies and for comparison with American forms. In connection with this herbarium, the BULLETIN for December contained an account of the life and work of Otto Kuntze, by Dr. Barnhart, of the New York Botanical Garden.

Mr. Francis W. Pennell, of the University of Pennsylvania, has given a set of specimens of *Agalinanae*, comprising most of the species of the Atlantic coastal plain east of the Mississippi and illustrative of his recent paper on these forms.

Herbarium specimens have been presented by Mr. Memminger from the vicinity of Beaufort, S. C., and by Miss A. L. Sloan from Pendleton, S. C. Miss Bragg has also collected in the coastal region of the state.

Miss Pauline Dill, as a volunteer assistant, is engaged in rearranging the Elliott Herbarium in systematic order. Miss Susie Allan, Miss Isabel O'Neill, and Messrs. Alexander Sprunt, Jr. and James Sprunt have mounted herbarium specimens.

GEOLOGY. In spite of failing eyesight, Dr. Martin accomplished valuable results in this department in January, February, and March. In this work Miss Minnie Coffin acted as assistant.

A general report by Dr. Martin on the development of the geological collections during his service as honorary curator was printed in the BULLETIN for April. It shows many important special projects completed or well advanced, in addition to detailed study, cataloging, and arranging of the general collections. The excellent condition of the department is due solely to the expert knowledge and enthusiastic devotion of Dr. Martin and to many and valuable gifts which he has made personally or obtained from others.

Among the special projects are the carbon exhibit, the Pied-

mont collection, the precious and ornamental stones, and the series of Tertiary coastal plain fossils.

The carbon exhibit was installed in the main exhibition hall in 1912, and comprises an unusually complete series illustrating the formation of lignites and coals; petroleum, asphalts, and mineral oils; and amber, copal, and other fossil resins. The exhibit is of the greatest educational value and has been extensively used by schools and colleges.

The Piedmont collection is designed to illustrate the distribution of mineral species along the belt of crystalline rock which extends through the middle and southern Atlantic states from Virginia to Alabama. Characteristic material from most of the important localities in this region has been assembled, and it is important that this should be prepared for exhibition and that its significance should be discussed in a comprehensive paper suitable for publication in the CONTRIBUTIONS from the Museum.

The series of precious and ornamental stones, which has been gathered by Dr. Martin during many years, and which he has presented to the Museum, will make a very attractive exhibit and should be installed at an early date.

It is important that provision be made for the arrangement of both the Sloan and the Museum collections of South Carolina and coastal plain minerals and fossils to show the geological history of this region.

In addition to these special projects, it is essential that the installation of the general series of minerals should be completed. This work was begun in 1912 and the style of labeling adopted is so simple, and at the same time so instructive, that the exhibit has attracted the interest of visitors and favorable comment from museum workers. The uninterrupted time required for study in preparing this type of installation makes the problem difficult of solution with so small a staff as that of the Museum.

CONCHOLOGY. The honorary curator of recent shells, Mr. W. G. Mazyck, has rearranged the specimens in the shell exhibit to conform to the order of his recently published catalog, and has added duplicates from his private collection to fill gaps in our series. It will require some time to complete the installation of this exhibit.

Mr. Mazyck has also nearly completed the arrangement of the shells of the Edmund Ravenel collection. These are now in temporary exhibition cases in the main hall.

ARCHEOLOGY. Gifts to this department have been received

from Mr. H. W. Seton-Karr, Dr. D. S. Martin, and Mr. A. S. Rowell. These have been temporarily installed by Miss Bragg. Mr. Seton-Karr's gift consisted of stone implements from India and Egypt which are especially interesting for comparison with American types. Mr. Rowell presented a series of Indian implements of a very primitive type from South Carolina.

Miss Bragg has also prepared the entire South Carolina collection for permanent labeling.

ORNITHOLOGY. Individual labels for 225 specimens in the exhibit of South Carolina birds were prepared by Miss Bragg and printed on the Museum press, thus greatly improving the appearance of the exhibit. For this and other printing the Museum is indebted to Dr. C. H. Prince, who came to the aid of an overworked staff and did this printing better than we have ever had it done before.

In the coming year the descriptive species labels should be printed for this exhibit. Thirteen of these were printed this year.

MAMMALOLOGY. The bison exhibit was completed by the construction of a base representing the surface of a prairie and by the addition of descriptive labels. Labels were also printed for the elk exhibit. These two groups are the most prominent exhibits in the main hall and it is, therefore, particularly gratifying to have them properly installed.

Little progress in case construction has been made because the carpenter has been occupied with the extensive building repairs. This is not so serious a misfortune as it may seem, however, since it has resulted in carrying over a balance in the General Account which will make possible much more rapid and extensive case construction during the coming year than could have been accomplished otherwise.

MISCELLANEOUS ACCESSIONS. In addition to accessions listed elsewhere, gifts of specimens have been received from fifty-six friends of the Museum. This large number of donors indicates the wide-spread interest of the community. It is a matter of regret that space forbids detailed acknowledgment of these gifts.

LIBRARY

The routine work of the library has progressed unusually well, and it is hoped that progress in the coming year will be such that thereafter Miss Bragg may have less of the detail to carry and thus free her time for other lines of work.

Concentration of funds upon shop equipment and case construction since 1910 has necessitated the discontinuance of systematic purchases of books for the library. A similar necessity will exist next year, but it is essential that in the near future adequate provision for the increase of the library be made in the budget. During the past year the library improvements have included \$58.83 for books, \$43.72 for book-binding materials, and \$9.51 for book supports. A new typewriter has been purchased for the use of the library.

In addition to regular exchanges and subscriptions, *Science* and the *Proceedings* of the American Association for the Advancement of Science have been deposited by the director, *Popular Science Monthly* and publications of the New York Academy of Sciences have been given by Dr. Martin, and the *National Geographic Magazine* and *American Forestry* by Miss Henrietta Murdoch.

BIOLOGICAL SURVEY

It is to be regretted that the Muesum is not in a position to make any provision for regular work on the biological survey. The records of the survey are for the most part incidental to other work and the value of the data obtained under these difficult conditions is an indication of the results which might be accomplished with some special effort.

The most complete data on file are for the birds. Migration and distribution records have been filed with fair regularity for species already listed. These records extend the occurrence of 34 species into months in which they had not previously been reported. Seven species new to the survey, one of which is also new to the state, have been added.

The greatest progress of the year has been in the section of plants. There have been added 19 species of pteridophytes and 788 species of spermatophytes not previously recorded in the survey. The total number of species of South Carolina plants now listed is 2033. Dr. B. L. Robinson, curator of the Gray Herbarium, has kindly furnished records for over 600 specimens representing 317 species of South Carolina plants in the Gray Herbarium, and also complete data for all plants which he collected on his visit to this state in 1912. Dr. Robinson has thus given material assistance to the Museum in the difficult task of obtaining records of South Carolina plants in the herbaria of other institutions.

Survey cards have been prepared under Miss Bragg's direction for all plants in the Museum herbaria, exclusive of the Elliott herbarium, and of 215 specimens of cryptogams.

Miss Emma Gibbes has rendered valuable volunteer service by preparing survey cards for all published or otherwise available records of the collection of her father, Professor Lewis R. Gibbes. Miss Elizabeth P. Ravenel and Miss Frances Dill have also acted as volunteer assistants in preparing survey cards.

It is of interest to note that the number of species already recorded in the survey exceeds those cataloged by Dr. Bachman for the vicinity of Charleston.

PUBLICATION

The ninth volume of the BULLETIN, comprising seventy-two pages, was completed in 1913. Among the longer articles contained in this volume mention may be made of the annual report of the director in January number; a review of the history of the Muesum in the special anniversary number for March; Dr. Martin's report in the April number, summarizing the progress of the geological department during his curatorship; and Dr. Barnhart's account, in the December number, of the life and work of Otto Kuntze.

Mr. William G. Mazyck's Catalog of Mollusca of South Carolina was published in June as the second number in the CONTRIBUTIONS FROM THE CHARLESTON MUSEUM. This series is the medium for publication of the research work of the Museum and is in many ways one of its most important activities. It would be greatly to our advantage in many ways if funds could be secured for the more frequent issue of the CONTRIBUTIONS.

The director has for years contemplated a third series of publications comprising popular guides to the fauna and flora of South Carolina. The need of such books is very great, for there can be little popular interest in natural history until there are simple illustrated manuals describing the animals and plants of our own section. There are many such books for the north and even the west, but almost none for the south. Their preparation must follow such serious studies as we print in the CONTRIBUTIONS, and the publication of the Catalog of Mollusca affords an opportunity for the initiation of this third series, which completes the scheme of publications now contemplated.

Mr. Mazyck's catalog is a purely technical list, but it gives us

for the first time the names of all the species known in South Carolina, with comments on their distribution and abundance. From the 534 species listed we are now selecting about 75 of the shells common on the sea beaches and are making arrangements to obtain simple illustrations which will enable us to print a pocket guide to the common beach shells of South Carolina. The text will be brief and untechnical and the purpose of the guide will be to enable anyone to identify shells collected on the beach and to learn simple and interesting things about them. It is hoped that this book may be published in the coming year.

Papers sent from the Museum to other publications include a paper on Educational Work of American Museums written by the director for the annual report of the United States Commissioner of Education and four ornithological notes by Mr. F. M. Weston, Jr. in *The Auk*.

For editorial support and the printing of news notes and notices the Museum is again indebted to *The News & Courier* and the *Evening Post*.

PUBLIC INSTRUCTION

The activities of this department have become both numerous and extensive. They include the Natural History Society, Miss Bragg's class in botany, the service extended to the public and private schools, the instruction given for affiliated colleges, and public lectures. All of this work, with the exception of the last two items, is under the immediate care of Miss Bragg as curator of public instruction.

NATURAL HISTORY SOCIETY. This society represents one of the first efforts of the Museum to arouse interest in natural science and wholesome out-door life. After leading a somewhat precarious existence for several years, it has for some time shown healthy growth in numbers and interest. The number of members in the past year was one hundred and seventy-nine. The society is divided into two sections: Section A for adults, and Section B for children under fifteen years of age. Each section has a monthly meeting at the Museum and frequent field trips for study under Miss Bragg. The scope of the meetings may be indicated by the programs, as follows: January—no meeting on account of rain; February—Dr. George F. Matthew on Fossils of St. John, New Brunswick; March—Director Rea on Evolution of a Tooth; April—Forecaster J. H. Scott on Weather

Forecasting; May—Miss Bragg on Weeds of Charleston; November—Miss Bragg on South Carolina Birds in and on the Way to New England; December—Miss Bragg on South Carolina Birds in Arctic Regions and on Bird Rock (using information prepared by A. Sprunt, Jr. and B. R. Chamberlain). Specimens and lantern slides are used in illustrating these talks.

Fifteen field trips were conducted by Miss Bragg to such localities as Hampton Park, the vicinity of the Navy Yard, the Isle of Palms, St. Andrew's Parish, Mulberry Castle, Summer-ville, the heronry near Secessionville, Dewees Island, Yeaman Hall, and Otranto. The society is indebted to Mr. R. P. Tucker for the privilege of landing at Mulberry Castle, and to Messrs. E. A. Williams and Porter Williams for the use of their launches in visiting the heronry.

The society has grown so large that the Thanksgiving Day and Washington's Birthday trips, when it has been customary to take the entire Section A, have become unprofitable. Hereafter there will be a larger number of small trips, entailing additional work for Miss Bragg, but giving much better opportunity for field work.

The Natural History Society has become an important educational asset of the city. It affords recreation and instruction to adults and is even more important in developing in the young a wholesome interest in natural science. The younger members have always been willing and efficient assistants in many lines of Museum work. One of the boys who has grown up in the society is now studying taxidermy in the studios of Mr. Carl E. Akeley in New York.

The society has increased the equipment of the Museum by purchasing colored lantern slides, charts, and metal cases for the storage of birds and insects.

CLASS IN BOTANY. This class was organized in November, 1912, among the members of the Natural History Society, for the purpose of giving a knowledge of our local flora and training in methods of identifying plants. It numbered twenty members and continued successfully through the winter and spring months. It will be convened again the second Monday in February.

SCHOOL WORK. The cooperation of the Museum with the public schools has grown in extent and interest during the year. A full account of the facilities which the Museum offers the schools was printed in the *BULLETIN* for December, 1912.

There are now in almost constant use in the schools twenty-six traveling exhibits. These exhibits are prepared for use in

connection with the first grade only, but the superintendent states that they reached 1750 children in the first grades last year.

This work should be extended as rapidly as possible to the higher grades, and to geographical and industrial subjects. The one industrial exhibit now available, illustrating very fully the iron and steel industry, was used successfully by the industrial department of the high school, and has demonstrated the great value and scope of such exhibits.

Requests are received in increasing numbers from rural schools for the use of the traveling exhibits. These requests are complied with when it is possible to do so without interfering with the work in the city. The director hopes and confidently expects that in the not distant future means will be provided for the extension of this educational work into the country schools.

PUBLIC LECTURES. The course of public lectures by the director, on Heredity and Kindred Problems, which was begun in December, 1912, was concluded in January, 1913. It is desirable that general public lectures on timely phases of scientific investigation should be given as regularly as possible each winter.

AFFILIATED COLLEGES. The College of Charleston and the Medical College of the State of South Carolina are affiliated with the Museum and conduct a part of their work in the laboratories and classrooms. They pay the expense of their work and share the general maintenance of the laboratory. The relation is mutually helpful. In his recently published report, the dean of the Medical College, says:

I wish to make reference to the unusual facilities for the study of anatomy offered by our affiliation with the Charleston Museum, and to suggest that you seriously consider the advisability of providing for a pre-medical year, in which the osteological collection can be utilized most profitably. This collection is exceptionally complete, its equal being found in no other Southern city, and indeed, in few of the cities of the country.

The laboratory was painted in white enamel early in the year, and equipped with additional tables, apparatus, cabinets, and other conveniences. The equipment put in by the Medical College is constantly increasing.

CONCLUSION

The spirit of the past year has been one of achievement. It

is difficult to avoid the feeling that the uncertainty of ultimate success in establishing the Museum on a permanent and efficient basis, which has been ever-present during the past decade, is giving way to reasonable certainty. That there will be many difficult problems to contend with is to be expected, but with the measure of success already achieved, and with the opportunities and equipment for larger and better service, we cannot but face the future with renewed zeal and courage.

In scientific investigation and recreation there is urgent need and abundant opportunity in South Carolina for a great museum which shall be, not a mere storehouse of mummies, but a clearing house for the dissemination of scientific knowledge by direct visual instruction in such varied but coordinate ways as the needs of the people require. To fulfil this high destiny should be the constant aim of the Charleston Museum, the oldest of American museums in point of years, but, we trust, as youthful as any in enthusiasm, adaptability, and resourcefulness.

The next decade will complete a century and a half of museum history. If it accomplishes for this institution the relations between science and education which have been indicated above, the Charleston Museum will stand among the leaders in museum progress, as indeed it ought in justice to the high ideals with which it was endowed by its founders.

PAUL M. REA, *Director.*

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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II Catalog of the Mollusca of South Carolina, by William G. Mazýck. Pp. XVI + 39. Price: paper, 50 cents.

III Birds of the City of Charleston, by Herbert Ravenel Sass. In preparation.

BULLETIN
OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

PRELIMINARY LIST OF FERNS

Volume X, Number 2

FEBRUARY, 1914

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

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WM. G. MAZÏCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
NATHANIEL W. STEPHENSON.....*Art*
EDWARD R. MEMMINGER.....*Fungi*

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Instructor in Physiology and Zoology

L. WM. MCGRATH

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HARRIET E. COFFIN

THE CHARLESTON MUSEUM was organized in March, 1773, by the Charles Town Library Society. In 1815 it was transferred to the Literary and Philosophical Society of South Carolina, and in 1828 was deposited in the Medical College of South Carolina. In 1850 the Museum was transferred to the College of Charleston, where it was known as the College of Charleston Museum. In 1907 a building was provided by the City and the name changed to The Charleston Museum.

The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....\$ 10	PATRONS.....\$ 500
SUSTAINING MEMBERS.... 25	BENEFACTORS..... 1000

THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 10 CHARLESTON, S. C., FEBRUARY, 1914 No. 2

PRELIMINARY LIST OF THE FERNS OF THE COAST REGION OF SOUTH CAROLINA NORTH OF CHARLESTON

The present paper is based on records from the Charleston Museum's plant survey of South Carolina. This survey aims to record for each species in South Carolina, (1) all published references to occurrence within the state, (2) data relative to herbarium specimens collected within the state, and, (3) the distribution of species as indicated by collecting and ecological study in different sections of the state.

For this summary of the ferns of the coast region north of Charleston the published sources have been John Bachman's Catalogue of phaenogamous plants and ferns, native or naturalized, found growing in the vicinity of Charleston, South Carolina, 1834; Henry W. Ravenel's Catalogue of the natural orders of plants, inhabiting the vicinity of the Santee Canal, S. C.;¹ Lewis R. Gibbes' Botany of Edings' Bay;² W. C. Coker's three papers, The garden of André Michaux,³ Observations on the flora of the Isle of Palms,⁴ Plant life of Hartsville, S. C., 1912; and R. M. Harper's A midsummer journey through the coastal plain of the Carolinas and Virginia.⁵

¹ *Proc. Amer. Assoc. Adv. Sci.*, 1850, 2-17.

² *Proc. Ell. Soc.*, I, Oct., 1857, 241-248.

³ *Jour. Elisha Mitchell Scientific Soc.*, XXVII, July, 1911, 65-72.

⁴ *Torreya*, V, Aug., 1905, 135-145.

⁵ *Bull. Torrey Botanical Club*, XXXVI, 1907, 351-377.

The herbaria consulted have been the Gray Herbarium, and those of the New York Botanical Garden, the University of Nebraska, and the Charleston Museum. Citations of specimens in the latter are marked (H), and refer chiefly to Ravenel's herbarium from the vicinity of the Santee Canal, upon which his Catalogue is based, and to specimens of my own collecting within the last four years. A few specimens are from Francis Peyre Porcher.

Further records are from the survey, based on my personal observations.

The number of species listed is twenty-nine, seven of which are from Bachman's Catalogue, unsubstantiated by specimens and probably erroneous. Six species which the manuals credit to South Carolina should be looked for in the coast region, namely, *Ophioglossum vulgatum* L., *Botrychium biternatum* (Lam.) Underw., *B. obliquum* Muhl., *Asplenium dentatum* L., *Lycopodium lucidulum* Michx., and *L. chapmanii* Underw.

The nomenclature followed is that of the first edition of Small's Flora of the Southeastern United States.

I wish to express my thanks to Miss Margaret Slosson and Dr. B. L. Robinson. Dr. Robinson has most generously furnished me with data for over six hundred specimens of South Carolina plants in the Gray Herbarium.

Ophioglossum crotalophoroides Walt. ADDER'S-TONGUE. Light soil in pine woods.

Records. Bachman: Charleston. Ravenel: Santee Canal (H).

Botrychium virginianum (L.) Sw. RATTLESNAKE FERN. This species is probably common but the older herbaria have preserved no specimens of it. Bachman lists it for Charleston and Ravenel doubtless refers to it as one of his two species of *Botrychium*, *Ophioglossum crotalophoroides* from his herbarium being the other. Miss Mabel Webber and I found it fairly common at Otranto, in low mixed woods bordering the swamp to the west of the railroad. On April 27, 1913, the spores had fallen.

Records. Bachman: Charleston. Webber and Bragg: Otranto (H).

Osmunda cinnamomea L. CINNAMON FERN. Common and abundant on the mainland in wet woods and borders of swamps; occasional in roadside ditches. Fiddleheads appear about the first week of March and mature spores may be found early in May.

Records. Bachman: Charleston. Bragg: Charleston Navy Yard (H), Georgetown County, Otranto (H), Summerville, Sumter. Coker: Hartsville, Ten Mile. Ravenel: Santee Canal.

Osmunda spectabilis Willd. ROYAL FERN. Common but less abundant than *O. cinnamomea*, with which it is usually associated. Spores mature in May.

Records. Bachman: Charleston. Bragg: Charleston Navy Yard (H), Ten Mile. Coker: Hartsville, Ten Mile. Ravenel: Santee Canal.

Polypodium vulgare L. COMMON POLYPODY. Recorded by Bachman only and that probably erroneously, as he fails to list the very common *P. polypodioides*.

Polypodium polypodioides (L.) A. S. Hitchcock. RESURRECTION FERN; GRAY POLYPODY. Common throughout the coastal region on trunks and large branches of trees, particularly of live oaks. Occasionally found in sand at the base of trees and on old buildings, even on tile roofs. In mild seasons, such as 1913 and 1914, growth continues throughout the year and prothallia and young plants may be found in January. This and *Pteridium aquilinum* are the common ferns of the sandy coast islands; both are found throughout the state.

Records. Bragg: Cainhoy, Charleston, Ingleside, Isle of Palms (H), Otranto, Santee Swamp, Ten Mile. Coker: Hartsville, Isle of Palms. Porcher: St. Johns Berkeley (H). Ravenel: Santee Canal (H). Robinson: Summerville (Gray Herb.).

Pteris serrulata L. f. A tradition persists in Charleston that the common introduced fern now determined as *Pteris serrulata* L. f. was brought here from Europe by the Huguenots, and it is often called the Huguenot or Mediterranean Fern. On the other hand, local students claim that Prof. Lewis R. Gibbes discovered

it here in 1868 and determined it as *P. cretica*. The first reference to the occurrence of a naturalized *Pteris* in South Carolina appears in the *Proceedings of the Elliott Society*,¹ where Professor Gibbes reports "an undetermined species of *Pteris*, found about a month since, in fruit, in Wentworth St., near the corner of Rutledge, growing on the brick foundation of a wooden house, on the South side of the street. * * * the Fern is growing freely, and it is like none of those known to inhabit this State. Its origin and the time of its introduction are unknown." No further reference to the discovery is made in the Elliott Society's *Proceedings*, and no specimens of an introduced *Pteris* from Professor Gibbes' herbarium have been traced. Professor Gibbes' daughter, Miss Emma Gibbes, tells me that her father transplanted several of the ferns from Wentworth Street to the wall of his laboratory at the College of Charleston. From here he permitted the collector, A. H. Curtis, several years later to take many specimens, which were distributed as *P. serrulata*. J. Donnell Smith also collected here April 16, 1880 (Gray Herb.). Since then the fern has become abundant on the many shaded old brick walls of the city. Modern progress is its enemy and the advent of fresh paint and plaster mark its retreat. It is, however, holding its own and has spread beyond the city. I have found it plentiful on a modern brick culvert at the Navy Yard, Dr. D. S. Martin has noted it on the Theological Seminary at Columbia since 1898 or 1900, and Miss Anna Sinkler has recently sent me specimens from "Eutaw," near Eutawville.

Miss Margaret Slosson has kindly examined for me the South Carolina specimens of this species in the herbarium of the New York Botanical Garden and finds, beside eight sheets from Curtis, one collected by Eggleston at Eutawville, on "Locks of Santee Canal." That Eutawville is fifteen miles from the Santee Canal is of little importance, but it is of interest to know that Eggleston, probably in the eighties, found this introduced species in Ravenel's own country. Ravenel's Catalogue was devoted

¹ II, Dec., 1868, 61-62.

exclusively to native plants but his fern herbarium includes numerous foreign and cultivated species. Neither the herbarium nor his manuscript catalog of it contain any trace of our fern, as surely they must have, had it been near the Santee Canal previous to 1850. Ravenel, further, in 1882, in his List of the more common native and naturalized plants of South Carolina¹ gives only two species of *Pteris*,—"aquilina" and "*Cretica*." The latter is surely a mistake for *serrulata*. Ravenel could not have failed to know of Professor Gibbs' discovery. He may, however, have examined only young specimens, which frequently lack the decurrent character of the leaf. Scarcely three years before the species was still undetermined, as Prof. D. C. Eaton wrote,² "I learn from Prof. Lewis R. Gibbs, that a *Pteris* has sowed itself and grown abundantly on the walls of the College of Charleston, S. C. It will be very interesting to know whether this is *Pteris cretica* or *Pteris serrulata*." Miss Gibbs, who was her father's amanuensis, tells me that he sent specimens to Professor Eaton for determination. Chapman includes the species in the supplement to the 1884 edition of his Flora as *P. serrulata* from Charleston. In the main text of Professor Gibbs' copy of this edition he has added *P. serrulata* in pencil to the given species of *Pteris*, but makes no mention of *cretica*.

Although the ferns have disappeared from the Wentworth Street house and the laboratory at the College of Charleston was taken down after the earthquake of 1886, there is no room to doubt that the present well-known *P. serrulata* is the fern of Professor Gibbs' discovery and that the belief that *P. cretica* has ever been taken in Charleston is an illusion based on Ravenel's error.

The species is deciduous in Charleston; growth continues throughout the year, however, and young plants may be found in January. Spores mature in April.

Pteridium aquilinum (L.) Kuhn. BRACKEN. Common throughout coast region, in open sandy woods. With scrub oaks this

¹ S. C. Board of Agriculture. South Carolina. 1883, 351.

² Bull. Torrey Bot. Club, VI, 1879, 307.

species forms the typical undergrowth where the pine barrens are frequently burned over. It is the only fern of the dry, lightly-wooded sea islands and is characteristic of the open grassy borders of the jungle on more densely covered islands. Spores mature in May.

The variety *pseudocaudatum* Clute is well represented by a specimen from the Santee country, collected by Ravenel and labeled by him *P. caudata*. Bachman's *P. caudata* must also, in all probability, be referred to this form. I have, however, searched extensively but unsuccessfully for a distinct variety in the vicinity of Charleston.

Records. Bachman: Charleston. Bragg: Charleston Navy Yard (H), Dewees Island, Georgetown County, Isle of Palms, Otranto, Sullivan's Island, Summerville, Sumter. Coker: Hartsville, Isle of Palms, Ten Mile. Gibbes: Edings' Bay. Harper: "intermediate pine-barrens." Robinson: Charleston Navy Yard (Gray Herb.).

Pellaea atropurpurea (L.) Link. CLIFF BRAKE. Recorded by Bachman, probably erroneously.

Anchistea virginica (L.) Presl. VIRGINIA CHAIN-FERN. Abundant in freshwater swamps and ditches and in low wet woods, associated with the Cinnamon Fern, Net-veined Chain-fern, and, in woods, with the Lady Fern and Florida Shield-fern.

Records. Bachman: Charleston. Bragg: Charleston Navy Yard (H), Georgetown County, Summerville, Sumter. Coker: Hartsville, Ten Mile. Harper: "damp sandy places." Ravenel: Santee Canal.

Asplenium platyneuron (L.) Oakes. EBONY SPLEENWORT. One of the most common ferns. Associated with *Pteris serrulata* on old walls in Charleston. Grows luxuriantly on wooded banks, and particularly along artificial ditches. Fertile leaves measuring four to five inches wide and twenty inches long, with deeply serrate pinnae, are characteristic of highly developed plants. Spores mature in May.

Records. Bachman: Charleston. Bragg: Charleston, Georgetown County, Ingleside, James Island, Otranto, Stateburg. Coker: Hartsville. Ravenel: Eutaw Springs, Santee Canal.

Asplenium trichomanes L. Recorded by Bachman only.

Asplenium ruta-muraria L. Recorded by Bachman only.

Asplenium filix-foemina (L.) Bernh. LADY FERN. Frequent in rich damp woods. Spores mature in May.

Records. Bachman: Charleston. Bragg: Charleston Navy Yard (H), Otranto. Coker: Hartsville. Ravenel: Santee Canal.

Lorinseria areolata (L.) Presl. NET-VEINED CHAIN-FERN. Very abundant in freshwater swamps and along the rice field canals.

Records. Bachman: Charleston. Bragg: Charleston Navy Yard (H), Otranto, Georgetown County along rice lands of Pee Dee and Waccamaw Rivers, St. Andrews Parish (H), Sumter. Coker: Hartsville, Ten Mile. Ravenel: Santee Canal (H).

Onoclea sensibilis L. SENSITIVE FERN. Not common.

Records. Bachman: Charleston. Bragg: St. Andrews Parish (H). Ravenel: Santee Canal (H).

Polystichum acrostichoides (Michx.) Schott. CHRISTMAS FERN. Common in dry mixed woods near the coast. At Stateburg found in a deep gorge. Brought into Charleston throughout the year by the negro women selling flowers.

Records. Bachman: Charleston. Bragg: Cainhoy, Otranto (H), Plantersville, Stateburg. Porcher: St. Johns Berkeley.

Dryopteris noveboracensis (L.) A. Gray. NEW YORK FERN. Recorded by Bachman, probably erroneously for *D. thelypteris*, a common species near Charleston.

Dryopteris thelypteris (L.) A. Gray. MARSH SHIELD-FERN. Common in wet woods.

Records. Bragg: Charleston Navy Yard (H). Coker: Isle of Palms.

Dryopteris patens (Sw.) Kuntze. Several plants on an old brick tomb at Goose Creek Church, Otranto, are all that I have found. Dr. B. L. Robinson kindly determined the species for me. Chapman, in the third edition of his Flora, includes South Carolina in its range but Small does not.

Records. Bragg: Otranto (H). Ravenel: Eutaw Springs (Gray Herb.).

Dryopteris floridana (Hook.) Kuntze. FLORIDA SHIELD-FERN. Not previously recorded for South Carolina. Abundant in several localities at the Charleston Navy Yard, growing in damp woods along streams running through the pine barrens. Associated in one particularly rich spot with the Cinnamon and Royal

Ferns, both Chain-ferns, the Marsh Shield-fern, and within a few yards of the Lady Fern and *Selaginella apus*. The leaves are evergreen and in winter lie stretched on the ground in a circle, the fertile ones often over three feet in length. Spores mature in late May and early June.

Records. Bragg: Charleston Navy Yard.

Phegopteris hexagonoptera (Michx.) Fée. BROAD BEECH-FERN.

Records. Bachman: Charleston. Porcher: St. Johns Berkeley (H).

Phegopteris phegopteris (L.) Underw. LONG BEECH-FERN. Recorded by Bachman, undoubtedly erroneously.

Woodsia rufidula Beck. Recorded by Bachman only. It is unlikely that any *Woodsia* should occur in this region and I am unable to form any opinion regarding the species referred to.

Azolla caroliniana Willd. FLOATING FERN. Floating in still water.

Records. Ravenel: Santee Canal (H).

Lycopodium alopecuroides L. FOX-TAIL CLUB MOSS. Common in damp pine land.

Records. Bragg: Georgetown County (H). Coker: Hartsville. Ravenel: Santee Canal (H).

Lycopodium carolinianum L. LITTLE CLUB MOSS. In low pine barrens.

Records. Bachman: Charleston. Bragg: Summerville (H). Coker: Hartsville.

Psilotum nudum (L.) Griseb.

Records. Ravenel: Santee Canal (H).

Selaginella apus (L.) Spring. CREEPING SELAGINELLA. Frequent but not abundant in shady places along the swampy margins of freshwater streams, growing in sand mixed with vegetable mold. Found throughout the year.

Records. Bragg: Charleston Navy Yard (H), Otranto. Ravenel: Santee Canal.

LAURA M. BRAGG.

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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EDITED BY
PAUL M. REA

BABYLONIAN CLAY TABLETS
LOCAL FAUNA
NATURAL HISTORY SOCIETY
SCHOOL AND MUSEUM NOTES
CALENDAR FOR APRIL

Volume X, Number 3

MARCH, 1914

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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Assistant in Library

HARRIET E. COFFIN

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The Museum is dependent upon dues from members and private subscriptions for all permanent improvements, for increase of the collections, and for maintenance of its educational and scientific work.

The membership fees are:—

ANNUAL MEMBERS.....\$ 10	PATRONS.....\$ 500
SUSTAINING MEMBERS.... 25	BENEFACTORS..... 1000

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BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 10 CHARLESTON, S. C., MARCH, 1914 No. 3

BABYLONIAN CLAY TABLETS

The Museum has recently purchased for use in its traveling school exhibits a series of original Babylonian clay tablets with cuneiform inscriptions dating from about 2200 B. C. It will be of unusual interest to school children to be able to actually handle records of Babylonian life written four thousand years ago. While all our Greek and Roman literature and even the Bible is known to us only through copies of the original manuscripts, in these tablets the hand of the ancient writer speaks directly to our eyes with no intermediary.

The preservation of these ancient writings is due to the durable nature of the material. Four thousand years ago clay tablets were used in Babylon in place of paper. Upon these tablets were inscribed the cuneiform or wedge-shaped signs of the language. The clay was then baked until it became like brick, and in this form it has withstood the lapse of ages.

Several thousand of these tablets were recently found in the ruins of a Babylonian city and have been purchased by European and American museums. The Charleston Museum is including them in the traveling exhibits sent to the schools in order that teachers may use them as object lessons to illustrate the books and civilization of the ancients, and the sources of ancient history.

The following description of the tablets purchased by the Mu-

seum illustrates a number of the most common uses of these writings and of the variations in style and form:

1. A receipt for twelve sheep. From Drehern. Date, about 2250 B. C. This tablet, about an inch square, took the place of the paper receipts constantly used in business today.

2. A tag telling the contents of a basket, to which it was attached by cords entering the holes on one side. From Drehern. Date, about 2250 B. C.

3. A temple record sealed with a cylindrical seal to prevent changing of the records. The seal bears the name of the scribe. From Jokha. Date, about 2300 B. C.

4. A list of objects for use in the temple. The first two lines have been erased by the finger nail of the scribe. This could have been done only while the clay was fresh and before it was baked. From Jokha. Date, about 2300 B. C.

5. A cone which was thrust into the temple wall at Warka (the Biblical Erech of Genesis X:10). It reads: "For Sin-ga-shid, the mighty hero, the King of Erech, the King of Amanu, in the temple of Ishtar, which he built in the royal palace of his empire." Date, about 2100 B. C.

P. M. REA.

LOCAL FAUNA

Arkansas Kingbird.¹—On Tuesday morning, December 9, 1913, I was attracted by the presence of an unusual bird in the lot which adjoins my home. The little fellow seemed extremely happy as he flew and circled over the dried grass and bushes of this waste lot. I watched him at various times during that day but it was not until a day or so later that I found time to carefully study him with the aid of glasses. After observing him for quite a while and comparing him with various descriptions in my book, I became convinced that it was the Arkansas Kingbird; but

¹ NOTE: The first record of the Arkansas Kingbird (*Tyrannus verticalis*) in South Carolina is due to the keen observation and interest of Mrs Sharpe, who tells here the story of her experience with this accidental visitor. The final identification and capture of the bird was made by Messrs. Burnham and Rhett Chamberlain. The skin is now in the Museum (Spec. 7204). This important addition to the avifauna of the state is recorded by Mr. E. Burnham Chamberlain in the April number of the *The Auk* (Vol. XXXI, No. 2).—EDROR.

as we talked it over and looked at the recorded habitat of that species it seemed hardly possible that my bird could have strayed so far from his home. The next question was—if not the Arkansas Kingbird, then what is it? We decided to ask the aid of some of the young men of the Natural History Society who are often in this locality. Accordingly on Monday, December 15, Mr. Sharpe spoke to Mr. Sprunt about the bird and inquired the name. Mr. Sprunt said that he had observed the bird some few days before but that he did not know just what it was. We decided that it was best to notify the Museum and let them send someone to identify it, killing it only in case it should be of real value as a record.

While preparing to go to the Museum on Tuesday morning, December 16, I looked from my window and saw Mr. E. Burnham Chamberlain together with Mr. B. Rhett Chamberlain. They were carrying their gun and as they have licenses for scientific collecting, I realized that I should soon know the species. They had heard of the bird the evening before and had come down to investigate. I was of course most interested in the capture and was delighted when Mr. Chamberlain returned to tell me that my bird was the Arkansas Kingbird and that it made a very noteworthy record for South Carolina, the first for the state, in fact.

We have missed the little fellow very much. He was so quick and free and happy in all his movements on the wing, and yet he would sit on a telephone wire or fence quiet as quiet could be, only his head constantly looking from side to side. In the morning and late afternoon he seemed more active than in the middle of the day. The late afternoon was the only time that I was able to hear his call. Once, with the aid of glasses, Mr. Sharpe observed him to pounce upon a grasshopper, carry it to the fence and eat it. Miss Bragg told me later that a small fiddler crab had been found in his stomach.

Altogether it was a most delightful observation and even had the record been of no value I should still have felt more than repaid for the time spent in watching the little creature.—EDITH E. SHARPE.

Prothonotary Warbler.—This beautiful little warbler (*Protonotaria citrea*) of the swampy lowlands is rarely found within the limits of the city. But on the morning of August 26, 1913, I observed three in a sycamore tree in front of my home on Carolina Street, in the northern part of the city. Of these I took one and prepared it as a skin for the Charleston Museum collection. This bird was in summer plumage and was evidently migrating, which explains to a certain extent its presence in the city.—EDWARD A. HYER.

Grinnell's Water Thrush.—On October 4, 1913, I took a specimen of this water thrush in the northwestern part of the city and a few days later obtained another one. As I could not determine the subspecies I left that to Mr. Miller of the American Museum, to whom thanks is due for the identification as *Seiurus noveboracensis notabilis*. Both birds are now preserved as unmounted skins in the collection of the Charleston Museum.—EDWARD A. HYER.

NATURAL HISTORY SOCIETY

Section A held its regular monthly meeting on March 5. As it rained all that day a very small attendance was expected and it was decided to postpone Mr. E. B. Chamberlain's talk on South Carolina Birds in Panama until the April meeting. A goodly number of people braved the weather, however, and an informal meeting was held in the library. A general discussion of the local status of birds observed on recent trips, and of the spring arrivals to be looked for, resulted in a most helpful hour.

Section B met on March 12 in the large lecture room. Miss Bragg talked on the Nesting Habits of Birds, illustrating her talk with colored lantern slides. The bird Contest was also concluded, resulting in the winning of the first prize by Master James Sprunt.

The prize was a copy of Reed's Water Bird Guide. The contest was close and Master George Howell was awarded as second prize one of Mrs. Comstock's Field and School Bird Note Books.

Section B will have a field trip to St. Andrew's Parish on Saturday, March 28. All members of Section B who desire to go should meet Miss Bragg at the toll gate of the New Bridge at 9.30 A. M. The return will be made in time for dinner.

The Botany Class has started again. All the old members have continued and half a dozen new ones have joined. The object of the class is to study plants, both systematically and structurally, but always for the purpose of learning to determine the species. There are no popular botanies for this section of the country and in consequence non-scientific people have hopelessly given up trying to learn the wild flowers. Furthermore, the preparatory schools of the present day are devoting their time so largely to physiological botany that, as a result, their graduates know little or nothing of the practical determination of species. The Museum hopes eventually to publish a popular botany for South Carolina. Meanwhile, through the medium of the Botany Class, it is showing people how to know the flowers they see about them, teaching a certain amount of physiology but laying particular stress on determination and relationship.

The Class is open to all members of Section A. Meetings are held on the first and third Mondays of each month at 4.30 P. M. at the Museum, or at some designated locality suitable for botanizing. Meetings will always be at the Museum on rainy days.

SCHOOL NOTES

Three classes in nature study have been held at the Museum during the month, respectively the first, second, and third grade teachers in the public schools of the city. These classes are designed to assist teachers in the use of the traveling exhibits which the Museum circulates among the schools. The classes were under the direction of Miss Louise Follin, supervisor of primary

school work, and instruction was given by the Museum's curator of public instruction.

A number of very attractive new traveling school exhibits are now ready for circulation and more are in preparation. Private school teachers may secure the loan of many of these exhibits by telephoning to the Museum. The new exhibits now ready include: Chimney Swift with nest and eggs; Orchard Oriole, male, female, and young male, with nest and eggs; Crow; Paper and Mud Wasp nests.

The Museum has a stock of tadpoles which it will distribute among teachers, both public and private, as long as the supply lasts. A jar should be provided for removal.

Books relating to nature study in the schools and containing helpful information about the subjects of the Museum's traveling exhibits will be found in the library. Teachers will find the library staff always ready to assist them in their study of either books or Museum exhibits.

NOTES FROM THE MUSEUM

The Museum is open free to the public on week days from 10 to 6. Children unaccompanied by an adult are admitted only on Saturdays.

Children visiting the Museum will find a most attractive assortment of mounted pictures in the library.

A new bulletin board has been set up in the reading room, on which may be found lists of the transient and summer bird visitors which are now returning north after wintering to the south of us. Each bird is listed to show the month in which it arrives. A blueprint chart of the local breeding birds has been prepared by Mr. F. M. Weston, Jr. and Mr. E. B. Chamberlain. This chart shows the weeks in which eggs of all the breeding birds have been found. There are several birds which are known to breed, the eggs of which have not been discovered. By watching this bulletin board everyone interested in birds may be prepared for effective bird study during the next few months.

Another form of bulletin to be seen in the reading room is the large picture poster showing brightly colored prints of birds. Several of these posters have been made. At present the common spring migrating birds are shown on one, and summer breeding birds on another. While prepared primarily for the children, adults are constantly observed studying them with interest.

Prof. Robert T. Jackson of Harvard University visited the Museum recently, and most kindly determined the various species of Echini in the Museum collection. The only species from the South Carolina coast proved to be the sea-urchins, *Toxopneustis variegatus* and *Arbacia punctulata*; the cake-urchin or sea-biscuit, *Mellita testudinata*; and the heart-urchin, *Moira atropus*.

Dr. D. S. Martin, honorary curator of geology, has been working on the geological collections at the Museum for the past two months.

A live opossum, presented by Mr. George P. Kingdon of the Mitchell School, now constitutes an interesting member of the Museum's live animal family. During the morning hours it is generally coiled up asleep but late in the afternoon it may be found wide awake and ready to eat or climb about its roomy cage.

Pillywagles Plat-Eye has come to live at the Museum. "Pilly" was discovered near St. Stephens on February 6, 1914. He then looked much like a downy baseball. For about six weeks he lived and thrived at the Oakland Club, from which he has been transferred to the Museum through the kindness of Mr. John B. Gadsden. Pilly is perfectly gentle, answers to his name, can be fed from the hand, and is altogether a most delightful member of society. Later he may discover that he is a Great Horned Owl and long for a wild life in the woods, but at present he is quite content and will be glad to welcome visitors. Pilly's cage will be found in the library.

MUSEUM CALENDAR FOR APRIL

April 2, Thursday. Regular monthly meeting of the Natural History Society, Section A, at 5 P. M. Mr. E. BURNHAM CHAMBERLAIN will speak on South Carolina Birds in Panama, and MISS BRAGG on Our Birds which Arrive in April. *A general invitation to be present is extended to all interested.*

April 4, Saturday. Section A launch trip up the Ashley River, starting from Chisolm's Mill at 9.30 A. M. *Open to members only. Registration closed.*

April 6, Monday. Botany Class at the Navy Yard. Party will start on the Navy Yard car leaving the Battery at 3.45 P. M. *Open to members of Section A.*

April 9, Thursday. Regular monthly meeting of the Natural History Society, Section B. MISS BRAGG will speak on Our Common Spring Birds. *A general invitation to be present is extended to all boys and girls interested.*

April 13, Monday. Seniors and Juniors of the Confederate Home College will meet at the Museum at 5 P. M. for a nature study lecture.

April 14, Tuesday. Boy Scouts of St. John's Mission will meet at the Museum at 8.30 P. M. for a lecture on Our Birds in the Nesting Season. *Illustrated with colored lantern slides.*

April 17, Friday. Section B field trip to Hampton Park, meeting at the Park entrance at 4.30 P. M. *Open to members only.*

April 18, Saturday. Section A launch trip to Dewees Island, starting from Custom House Wharf at 9.30 A. M. *Open to members only. Registration now in order.*

April 20, Monday. Botany Class at Hampton Park at 4.45 P. M. *Open to members of Section A.*

April 27, Monday. Seniors and Juniors of the Confederate Home College will meet at the Museum at 5 P. M. for a nature study lecture.

The Charleston Museum

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EDITED BY
PAUL M. REA

PRELIMINARY LIST OF BUTTERFLIES
LECTURE ON AFRICA
LOCAL FAUNA
CALENDAR FOR MAY

Volume X, Number 4

APRIL, 1914

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZYCK.....	<i>Conchology</i>
DANIEL S. MARTIN.....	<i>Geology</i>
ARTHUR T. WAYNE.....	<i>Ornithology</i>
NATHANIEL W. STEPHENSON.....	<i>Art</i>
EDWARD R. MEMMINGER.....	<i>Fungi</i>

Curator of Books and Public Instruction

LAURA M. BRAGG

Instructor in Physiology and Zoology

L. WM. MCGRATH

Secretary to the Director

LAURA L. WEEKS

Assistant in Library

HARRIET E. COFFIN

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VOL. 10 CHARLESTON, S. C., APRIL, 1914 No. 4

PRELIMINARY LIST OF BUTTERFLIES OF THE VICINITY OF CHARLESTON

The following list of butterflies occurring in and around Charleston is based on specimens taken and recorded in the biological survey of the Charleston Museum during 1912 and 1913, chiefly by myself and a few of the younger members of the Charleston Natural History Society, including J. Bachman Chisolm, Charles Colson, and Edward R. Jennings. It is, therefore, intended merely as a summary of work done and as a basis of future study, particularly for interested members of the Natural History Society.

The species here listed are, unless otherwise noted, represented by specimens in the Museum's collection, to which I have transferred from my own collection specimens of all species which the Museum had not previously secured.

Limited literature, time, and number of workers makes the collecting and preserving of our local lepidoptera necessarily slow. We are hoping this year to work out many life histories in addition to the mere collecting. Eggs, caterpillars, chrysalids, and butterflies will be most gladly received at the Museum as aids to this study. Holland's Butterfly Book has been followed for nomenclature and arrangement in this list.

FAMILY NYMPHALIDAE

SUBFAMILY EUPLOEINAE: MILKWEED BUTTERFLIES

Anosia plexippus Linn. THE MONARCH. Very abundant in city gardens and surrounding country. Early October to last of November. Toward the latter part of October when this butterfly is migrating it may be noticed in large swarms. Last year (1913) I saw them literally covering some sea-myrtle trees which were then in flower.

Anosia berenice Cramer. THE QUEEN. Common in city gardens and surrounding country. Records for September and October, a few in August.

SUBFAMILY HELICONIINAE: THE HELICONIANS

Heliconius charitonius Linn. YELLOW-BARRED HELICONIAN; THE ZEBRA. This butterfly is credited to the hotter portions of the Gulf States; a specimen taken in St. Andrew's Parish, October, 1912, is now in the collection of Prof. E. A. Smyth, Jr.

SUBFAMILY NYMPHALINAE: THE NYMPHS

Dione vanillae Linn. GULF FRITILLARY. Our most common butterfly. It is to be found in great abundance in our city gardens as well as in the surrounding country, from September through November and often into December.

Euptoieta claudia Cramer. VARIEGATED FRITILLARY. Common. Records for September, October, and November.

Argynnis diana Cramer. DIANA. Several taken at Caesar's Head, August, 1912. Collection of E. R. Jennings. No record for Charleston or vicinity.

Phyciodes tharos Drury. PEARL CRESCENT. Common along roadsides. Records from April to November.

Grapta interrogationis Fabricius. THE QUESTION-SIGN. Common during September and October. Caterpillars were found

feeding on the hackberry (*Celtis*) October 1, 1909. Chrysalids were formed on the 2nd and 5th, and hatched on the 12th and 14th respectively. Observation by Miss Laura M. Bragg.

Pyrameis atalanta Linn. RED ADMIRAL. Common from September to December: one record for January 1st.

Pyrameis huntera Fabricius. HUNTER'S BUTTERFLY. Fairly common both city and country, July to December.

Junonia coenia Hubner. THE BUCKEYE. Very common both in city and country. Records from August to December.

Basilarchia astyanax Fabricius. RED-SPOTTED PURPLE. Records from Navy Yard and Otranto; April and June. No records from city until August.

Basilarchia disippus Godart. THE VICEROY. Common in both city and country from spring to fall.

Chlorippe celtis Boisd. and Leconte. HACKBERRY BUTTERFLY. Very common on the battery and at Hampton Park. May to November.

Chlorippe alicia. THE ALICIA. Rare. One specimen taken by and in the collection of E. R. Jennings, Hampton Park, May 25, 1913 (BULL. CHAS. MUS., IX, 1913, 69).

SUBFAMILY SATYRINAE: THE SATYRS

Neonympha gemma Hubner. GEMMED BROWN. Abundant. Records for November only.

Neonympha eurytus Fabricius. LITTLE WOOD-SATYR. One record from Otranto, April 6, 1913.

Neonympha sosybius Fabricius. CAROLINIAN SATYR. Common in city and country. Records from May to November.

SUBFAMILY LIBYTHEINAE: SNOUT-BUTTERFLIES

Libythea bachmanni Kirtland. SNOUT-BUTTERFLY. Two records for August 17, 1913, one city, one Hampton Park.

FAMILY LYCAENIDAE

SUBFAMILY LYCAENINAE

Thecla melinus Hubner. COMMON HAIR-STREAK. Common in city—very abundant along country road-sides. Records from May to November.

Thecla cecrops Hubner. CECROPS. Common. Records for June only.

Lycaena comyntas Godart. EASTERN TAILED BLUE. Several specimens taken at Hampton Park during June. All specimens recorded are about one-eighth inch smaller than called for by Holland.

JESSE SHARPE.

(To be continued.)

DR. SEAMAN'S LECTURE ON AFRICA

Charleston is situated so far from large centers of scientific work that the Museum is seldom able to secure prominent men for its public lectures. The lecture of Dr. Louis Livingston Seaman on Friday evening, March 27, was therefore an event of special interest.

Dr. Seaman is a worldwide traveler, an author of note, and a surgeon of high reputation. He was associated with Dr. Koch in the investigation of sleeping sickness in Africa, and has made several exploring and hunting trips into the interior of Africa. His lecture was illustrated with many lantern slides from his own negatives, and he discussed in a most charming way his hunting experiences in the region which was subsequently visited by the Roosevelt expedition. In fact, Dr. Seaman had reached Mombassa at the conclusion of his last trip, just as Col. Roosevelt was starting for the interior.

In addition to describing the character of the country and the

hunting of big game, Dr. Seaman presented in a very forceful manner the great obstacle which sleeping sickness presents to the colonization of Africa. This disease is carried by the tsetse fly, and is always fatal. Over 70,000 natives have died in the vicinity of Lake Victoria Nyanza from this cause, and the disease threatens to annihilate the entire population of a large area. Dr. Seaman showed, however, that the fly is restricted to the immediate vicinity of the water courses, and that by cleaning out the vegetation along the banks of the streams, and moving the native villages back into the interior, it has been possible to greatly reduce the mortality.

It was really only a happy accident that enabled the Museum to offer this interesting lecture to the people of Charleston. Dr. and Mrs. Seaman visited the Museum the day before their intended departure from Charleston, and felt such interest in the work of the institution that Dr. Seaman not only consented to give his lecture, but to remain over another day for this purpose. It is very gratifying to the Museum that the people of Charleston fully appreciated the opportunity presented, as is shown by the fact that 515 persons came to the Museum for the purpose of attending the lecture. Unfortunately, the seating capacity of the lecture room accommodates only about 250 persons. Miss Bragg demonstrated exhibits in the main hall to many who were unable to obtain standing room in the lecture hall, and a considerable number went away after finding that they could not hear the lecture.

The Museum regrets the inconvenience which the lack of accommodation caused, but is greatly gratified by the interest which Dr. Seaman's lecture aroused.

P. M. REA.

LOCAL FAUNA

Notes on the Collection of Living Snakes.—One of the most popular exhibits during the past six years has been the collection of living snakes, begun in the spring of 1908 with a number of specimens presented by Mr. Henry P. Williams. It has not been possible to provide for any special collecting for the maintenance of this exhibit, but friends of the Museum have contributed specimens from time to time until about half of the species of South Carolina snakes have been shown to our visitors. As in many other departments of the Museum a little systematic collecting would produce large results.

The common poisonous snakes of this state have usually been well represented in the exhibit. These are the Diamond-backed and Timber Rattlesnakes, the Copperhead, and the Water Moccasin. The Coral Snake has been shown occasionally, but does not live in captivity.

Among the non-venomous species the pretty little red Corn Snake has probably been collected more frequently than any other species, while the Chicken Snake, Keel-scaled Green Snake, Garter Snake, Ground Snake, Spreading Adder, King Snake, Scarlet King Snake, Red-bellied Water Snake, Black Snake, and Coachwhip are frequently to be found in the collection.

The most popular member of our family is undoubtedly the six-foot Pine Snake (*Pituophis melanoleucus*) familiarly known throughout the city as "Molly". This handsome specimen is the favorite of the members of the staff and of many of our visitors. Her good temper is somewhat unusual among her kind and she has kept in perfect condition during her long life in captivity. Molly celebrates this month the sixth anniversary of her debut at the Museum.¹

¹ Since this account was written we regret to say that Molly has become seriously ill and has been transferred to a special quarantine cage where she is receiving the best medical attention. Every effort will be made to restore our favorite to her usual good health. Members of the staff feel that Molly's place could never be filled, and a very real regret is expressed by many people in the city who have learned of her illness.

One of our most remarkable specimens was a Red-bellied Snake (*Farancia abacura*) received in April, 1912. This is a large burrowing species living as deep as ten feet below the surface of the ground. Ditmars states that he has never induced mature specimens to feed in captivity and that they die after six or eight months. Our specimen lived without food for eighteen months and finally died in October, 1913. Another specimen of this species is now in the collection and an effort will be made to prolong its life by forced feeding.—P. M. REA.

Angler Fish.—Mr. Ellison Williams brought to the Museum an interesting fish which was sucked up by the dredge Sumter in the channel near the entrance to the harbor. The species has not been satisfactorily determined but probably belongs to the genus *Lophius*. The specimen is about three and a half feet long, very broad and flat, and of a dark brown color. The mouth is of enormous size and the gill openings take the form of slits under the pectoral fins. The eyes are poorly developed, for all the Angler Fishes catch their prey by the aid of long slender spines reaching forward from the top of the head and overhanging the cavernous mouth. Smaller fishes are attracted by these spines, which in some species are provided with a terminal knob that serves as a bait. The success of this fishing apparatus is attested by the presence of more than a dozen Whiting and other fishes in the throat of our specimen.

It is said that another Angler Fish was sucked up by the dredge at the same time, but that none of the fishermen on the waterfront had ever seen anything like them.—P. M. REA.

MUSEUM CALENDAR FOR APRIL

May 4, Monday. Botany Class at the Museum at 5 p. m. *Open to members of Section A.*

May 7, Thursday. Regular monthly meeting of the Natural History Society, Section A, at 5 p. m. Subject to be announced. *A general invitation to be present is extended to all interested.*

May 9, Saturday. Section B trip to Heron Island. Launch will leave from Custom House wharf at 3.15 p. m. *Open to members only.*

May 11, Monday. Seniors and Juniors of the Confederate Home College will meet at the Museum at 5 p. m. for a nature study lecture.

May 13, Wednesday. Section A trip to Heron Island. Launch will leave from Custom House wharf at 3.15 p. m. *Open to members only. Registration now in order.*

May 14, Thursday. Regular monthly meeting of the Natural History Society, Section B. There will be a bird contest for members who have joined during the past year. Prize, Land Bird Guide. *A general invitation to be present is extended to all boys and girls interested.*

May 16, Saturday. Section A bird and botany trip to Otranto. All who wish to go will take the 6.10 a. m. train from the Union Station. *Open to all members of Section A.*

May 18, Monday. Botany Class at the Museum at 5 p. m. *Open to members of Section A.*

May 23, Saturday. Section A trip to Heron Island. Launch will leave from Custom House wharf at 3.15 p. m. *Open to members only. Registration now in order.*

May 25, Monday. Seniors and Juniors of the Confederate Home College will meet at the Museum at 5 p. m. for a nature study lecture.

May 30, Saturday. Launch trip. Destination to be announced.

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LOCAL FAUNA
NOTES FROM THE MUSEUM

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MAY, 1914

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZÏCK.....*Conchology*
DANIEL S. MARTIN.....*Geology*
ARTHUR T. WAYNE.....*Ornithology*
NATHANIEL W. STEPHENSON.....*Art*
EDWARD R. MEMMINGER.....*Fungi*

Curator of Books and Public Instruction

LAURA M. BRAGG

Instructor in Physiology and Zoology

L. WM. MCGRATH

Secretary to the Director

LAURA L. WEEKS

Assistant in Library

HARRIET E. COFFIN

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THE BULLETIN OF THE CHARLESTON MUSEUM is published monthly, from October to May, by the Museum and is entered at the Post Office at Charleston, S. C., as second-class matter.

BULLETIN

OF

THE CHARLESTON MUSEUM

VOL. 10

CHARLESTON, S. C., MAY, 1914

No. 5

PRELIMINARY LIST OF BUTTERFLIES OF THE VICINITY OF CHARLESTON

(Concluded.)

FAMILY PAPILIONIDAE

SUBFAMILY PIERINAE: SULPHURS AND WHITES

Pieris monuste Linn. GREAT SOUTHERN WHITE. This butterfly was quite common in city gardens during October and November of 1912, but no observation was reported for 1913.

Pieris protodice Boisd. and Leconte. COMMON WHITE. This butterfly is quite common around Hampton Park in the early summer.

Pieris rapae Linn. CABBAGE-BUTTERFLY. Very common from early spring till late fall, both in city and country. The caterpillar is very destructive to growing cabbage plants.

Catopsilia eubule Linn. CLOUDLESS SULPHUR. This, with the exception of the Gulf Fritillary, is probably our most common butterfly; its bright yellow color making it conspicuous among the flowers of our gardens from March to December.

Meganostoma caesonia Stoll. SOUTHERN DOG-FACE. Only one specimen of this butterfly has been reported. This was

taken in St. Andrew's Parish by E. R. Jennings, May 24, 1913, and is in his collection.

Colias eurytheme Boisd., var. **keewaydin** Edwards. **EURYTHEME**. Common in and about Hampton Park during June and July, 1913.

Terias nicippe Cramer. **NICIPPE**. Common in city and surrounding country; appears in September, records to December 4.

Terias nicippe Cramer. var. **flava**. This form of the above species is not uncommon. Records for October and November.

Terias lisa Boisd. and Leconte. **LITTLE SULPHUR**. Common in both city and country. September to November.

Terias jucunda Boisd. and Leconte. **FAIRY YELLOW**. Not common; was quite plentiful, however, for a few days about October 4, 1913.

Terias delia Cramer. **DELIA**. Fairly common during October and November.

SUBFAMILY PAPILIONINAE: SWALLOWTAILS

Papilio turnus Linn. **TIGER SWALLOWTAIL**. Common in city and country. Spring and summer.

Papilio turnus Linn., var. **glaucus** Linn. This dark form of the female of the above species is most abundant.

Papilio cresphontes Cramer. **GIANT SWALLOWTAIL**. Common in both city and country, March to September. The caterpillar feeds upon the various species of citrus, and is known in the orange groves of Florida as the "orange puppy," locally as the "orange dog."

Papilio asterias Fabricius. **COMMON EASTERN SWALLOWTAIL**. Very abundant in city gardens. Larva feeds upon fennel, also celery. Chrysalids formed on October 18, 1909, hatched March 29, 1910; observation by Miss Laura M. Bragg.

Papilio troilus Linn. **SPICE-BUSH SWALLOWTAIL**. Common in country in spring.

Papilio palamedes Drury. **PALAMEDES**. Abundant in country in spring and summer.

Papilio philenor Linn. PIPE-VINE SWALLOWTAIL. Common in country. Only records are for April. All specimens taken are considerably under size, being over an inch less in expanse than that figured by Holland.

FAMILY HESPERIIDAE

SUBFAMILY HESPERIINAE: SKIPPERS

Eudamus proteus Linn. LONG-TAILED SKIPPER. Common in city gardens and at Hampton Park. Records for September, October, and November.

Epargyreus tityrus Fabricius. SILVER-SPOTTED SKIPPER. Several specimens taken in St. Andrew's Parish, April, 1913.

Thorybes bathyllus Smith and Abbot. SOUTHERN DUSKY-WING. Several records for April.

Hesperia montivaga Reakirt. CHECKERED SKIPPER. Common throughout summer months, especially in vicinity of clover patches.

SUBFAMILY PAMPHILINAE: SKIPPERS

Thymelicus brettus Boisd. and Leconte. THE WHIRLABOUT. Common during summer months. Records from Hampton Park.

Atalopedes huron Edwards. THE SACHEM. Records from Hampton Park for June and July.

Calpodus ethlius Cramer. BRAZILIAN SKIPPER. Very common in city gardens, August to November. The caterpillar does great damage to the leaves of the canna. Numerous caterpillars have been observed by Miss Bragg from the caterpillar to the moth stage during various Septembers. Nine days are spent in the chrysalis.

JESSE SHARPE.

RECENT PROGRESS IN DEPARTMENT OF GEOLOGY

In spite of failing eyesight Dr. D. S. Martin has accomplished much valuable work during the past three months. The Piedmont collection of minerals, which has been described in the BULLETIN¹, has been systematically arranged and completely cataloged. In an informal report to the director Dr. Martin defines the purposes of this collection as three-fold: (1) To illustrate the mineralogy of the southern crystalline belt of rocks. (2) To illustrate the resemblances and differences in the mode of occurrence of these rocks throughout the region. (3) To trace the connection or relation mineralogically and geologically of this region as a whole with what appears to be its northern extension in Pennsylvania, New York, and New England. Although far from complete the Piedmont collection already comprises over five hundred entries and illustrates most of the principal points of interest. The general discussion of the mineralogical relations of this region is a much larger task and one which may not be completed for some time.

Dr. Martin has co-operated with Miss Bragg in the preparation of labels to be used in extending the installation of the general collection of minerals. The style of labeling adopted in the section already installed is intended to give to the average visitor the information most likely to be of interest and value to him regarding the minerals displayed. Several very gratifying expressions of approval of this plan of labeling have been received from visiting scientists.

Mr. Earle Sloan, recently state geologist of South Carolina, has been engaged in the arrangement of the extensive collection of fossils and minerals which he deposited in the Museum last year. Cases have now been prepared in the main hall for the installation of a part of this collection.

P. M. REA.

¹IX, 1913, 37-38.

LOCAL FAUNA

Winter Record for Anhinga in South Carolina.—We had been having warm weather for several months and while walking along the edge of a freshwater reserve on November 30, 1913, I saw a bird which at first I took to be a Cormorant, but on closer observation I decided that it must be a Snakebird or Water Turkey (*Anhinga anhinga*). Wayne, in his *Birds of South Carolina*, states that this species migrates south on the approach of autumn, the latest record having been made in September. I thought at the time that this lone Anhinga was only a late migrant but on visiting the same pond on December 30 I saw, not one lone bird but a pair and I was told by a negro that there were four Water Turkeys in that vicinity.

I was very glad to find these birds so content and I wondered whether they would spend the winter in this sheltered spot. On January 1, however, I heard to my great sorrow that a man had shot two Water Turkeys the day before. I fully expected that the remaining pair would leave and I did not go back to the reserve until January 18. By this time the weather had changed and there was a thin skin of ice on the ditches, but as I rode along, anticipating a fruitless trip, I was startled by a great fluttering and a Snakebird rose from nearly under my feet. I watched this bird for a couple of hours and tried to obtain photographs but was unable to get close enough. I was prevented from making another trip to this vicinity, but if the bird was not disturbed by man I am sure that it spent the remainder of the winter here.

The freshwater reserve mentioned above is on Back River about twenty-five miles from Charleston.—CASPAR CHISOLM.

Winter Bird Notes.—The following notes are additional to the Museum's survey:

Black-crowned Night Heron.—Mr. A. T. Wayne, in his *Birds of South Carolina*, says of this heron (*Nycticorax nycticorax naevius*): "During the past twenty-five years, I have never observed an adult of this species in winter on any part of the coast."

In view of this statement it will perhaps be interesting to note that for the last three winters I have, during Christmas visits, observed a flock of adult birds with one or two immature, at Enterprise, on Wadmalaw Island. This flock, consisting of about fifteen herons, stays throughout the day in a small group of live oaks on the edge of a creek, and on the approach of dusk goes out to spend the night on the adjoining mud-flats.

Yellow-crowned Night Heron.—On the afternoon of March 8, 1914, while walking through Magnolia Cemetery, I saw an immature heron of this species (*Nyctanassa violacea*) feeding on the edge of one of the small ponds near the entrance. I watched it for perhaps a quarter of an hour and noticed that it carried one foot limp, not using it at all. This probably accounts for our having with us at this time a bird which Mr. Wayne says does not winter here owing to its susceptibility to frost.—E. BURNHAM CHAMBERLAIN.

A Winter Record for the Osprey.—On December 31, 1913, during a short stay on Wadmalaw Island, I saw a Fish Hawk (*Pandion haliaetus carolinensis*) flying slowly over Wadmalaw Sound. Although records for this season are scarce, this bird undoubtedly winters in small numbers on our coast.—B. RHETT CHAMBERLAIN.

Piping Plover.—While collecting for the Museum on the eastern end of Sullivan's Island on the morning of March 17, 1914, I shot a Piping Plover (*Aegialitis meloda*). The bird is an adult male in late winter plumage, the dark markings on the front of the crown and on the sides of the breast being not yet quite black. Mr. Wayne, in *Birds of South Carolina*, says that this bird is a transient visitant, arriving during the second week in March, in winter plumage, and at once commencing to moult the feathers of the head and breast, assuming their summer plumage by April 10. He also states that this species is very uncommon, in fact rare. This is the first record made by the Museum survey, although there is one entered by Mr. Wayne in 1911.—E. BURNHAM CHAMBERLAIN.

NOTES FROM THE MUSEUM

An interesting series of several hundred pressed plants, collected by Prof. Lewis R. Gibbes in South and North Carolina, has been presented to the Museum by Miss Maria Gibbes. As most of Professor Gibbes' herbarium has been acquired by large institutions in the north and west it is particularly gratifying that even a small portion of it is now to rest in Charleston, in the museum for which he did so much during his lifetime.

Miss Elizabeth P. Ravenel of Keowee has recently examined that portion of the herbarium of the botanist, Dr. Henry W. Ravenel, which is now at Converse College, and has sent to the Museum copies of the labels of South Carolina specimens covering over one-fourth of the collection. These are now being entered on the Museum's plant survey and will prove of great value in the study of plant distribution in the state.

Miss Bragg spent from April 22 to April 26 at Beaufort, S. C., where she was delightfully entertained by the Beaufort Civic League. She spoke informally at a garden party given by the Civic League and gave a bird talk, illustrated with colored lantern slides, before the children of the public school. A visit to the primary grades of the school proved most interesting, and gave a favorable impression of the work done. In numerous carriage and automobile rides an opportunity to study the flora of the region was afforded and much information was secured for the plant survey. Beaufort people have a wonderful field for nature study at their very doors, flowers abounding and nearly every tree being alive with birds. Twenty-five species of birds were observed within the city during the few days spent there.

Among the teachers who have recently visited the Museum with their classes are Miss Louise Smith, Miss Coralie Nathan, Miss Emeve Crouch, Miss Edna Morse, Miss Eleanor Pundt, Miss May Taylor, and Miss Mabel Pollitzer.

The next Museum trips will be those to Heron Island. Registration should not be delayed. The Snowy Herons are al-

ready here. The new picture bulletin showing the birds which breed on Heron Island should interest all who are planning to take the trip.

The tadpole aquarium is now much depleted in stock, the greater number of the little swimmers having been sent out to the various schools. Those which remain are growing nicely; one greedy fellow has outstripped all the others and changed his black pollywog coat for a suit of genuine tadpole brown. Little legs may be expected to appear any day now. Then we shall begin to call our tadpoles toads and must provide a resting place for them, or some morning we shall look into the aquarium and find them drowned in the water which has been their home since they hatched from the eggs. When a tadpole begins to grow legs it also starts a pair of lungs, and soon its gills, with which it has breathed like a fish up to this time, cease to work and the little toad must have air for its lungs or die.

Molly, the pine snake, seems to be responding to treatment though still too ill to be handled. It is unusual for a snake similarly afflicted to recover. Special credit is due to Mr. L. W. McGrath, instructor at the Medical College, for the professional skill and care which have preserved her life.

A fine engraved portrait of Dr. John Bachman has been presented to the Museum through Mr. John F. Ficken. Further notice will appear at a later date.

The lecture and field work of the department of public instruction closes with the end of May to recommence next October. The next Museum Calendar will appear in the October number of the BULLETIN.

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(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I **Birds of South Carolina**, by Arthur Trezevant Wayne.
Pp. XXI + 254. *Price: paper, \$2.75; cloth, \$3.25.*

II **Catalog of the Mollusca of South Carolina**, by William G. Mazÿck. Pp. XVI + 39. *Price: paper, 50 cents.*

III **Birds of the City of Charleston**, by Herbert Ravene. Sass. *In preparation.*

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EDITED BY
PAUL M. REA

EGYPTIAN MUMMY
AMERICAN ASSOCIATION OF MUSEUMS
NOTES FROM THE MUSEUM
CALENDAR FOR NOVEMBER

Volume X, Number 6

OCTOBER, 1914

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EXHIBITS AT THE MUSEUM

EGYPTIAN MUMMY

The Museum's Egyptian mummy is again on exhibition, for the first time in seven years. It may be found at the rear of the main hall, the mummy and back of its wooden coffin in one case and the coffin top in another. This mummy was purchased for the Museum by Dr. Gabriel E. Manigault in 1893, from Mr. Horatio G. Wood of Newport, Rhode Island, who had secured it in 1880 in Cairo, where he had been American consul since 1865.

The mummy is that of a woman and is in its original linen wrappings. Black gum or pitch applied to the wrappings on the head and upper surface has hardened the linen to a case-like consistency. This is cut away over the face, leaving its blackened and indistinct features exposed. The great number of layers of linen are plainly visible. There is over the toes a removable covering on which conventionalized feet are painted.

The case is as interesting as the mummy. It is made of wood mortised and nailed with wooden pegs. The top and part of the sides are crudely painted, and the head and hair of the deceased are represented in applied low relief of wood. Dr. Manigault in a lecture on Egypt, delivered at the College of Charleston soon after the purchase of this mummy, says:

The body is doubtless that of a well-to-do commoner. The subjects painted on the case seem to be the figures of Netpe with expanded wings protecting the deceased; then the god Anubis presiding over the details of embalmmnt; and thirdly the boat which took the mourners across the Nile to the place of interment. Nearer the shoulders on each side is the head of the hawk-headed god, with Osiris, Isis, Nepthys, Tokari, and other deities in different compartments, the hieroglyphics extending down the front giving the name and quality of the deceased.

Embalming in Egypt was at first the exclusive right of kings, but in time the practice became universal, even the poorest having their bodies "pickled." The universality of the custom is due to two causes: the dryness of the climate, which naturally favored preservation; and the belief that man's Ka or Double returned to the body at times after death, just as it was supposed to leave the body during sleep. It was thought that body and Double lived on after death, but separately. To insure continued existence the body must be preserved for rehabilitation by the Double at will. The pyramids were built to serve as perpetual abiding places for the body and its Double. The Egyptians considered the life after death the real existence and gave much more thought to their tombs than to their residences. Egyptian philosophy underwent many modifications and elaborations during its long history, but always the preservation of the body was held essential.

The embalmers early mastered the art of mummy making. Herodotus described their methods as follows:

First they draw the brains through the nostrils, partly by means of a bent iron, partly by means of drugs introduced in their heads. Next, they make an incision in the stomach with a sharp Ethiopian stone; through this opening they draw the intestines, clean them and pass them through palm-wine, then again through aromatic substances; next, they fill the stomach with myrrh, cinnamon and other perfumes, then sew it up again. This done, they put the corpse in salt, and cover it with natron for seventy days. At the end of this period, they wash the body and swathe it in linen bandages.

In many cases numerous protective images, amulets, and various symbolical emblems were enclosed within the wrappings; the Book of the Dead, which contained instructions and ritual for the passage from this world to a state of immortality, was

placed near the mummy; and the body was then entombed with magic ceremonies. Magic indeed played a prominent part in the religion of the Egyptians.

Exhibited in the case with the mummy are beads, pieces of mummy wrappings, grains of wheat, and two carved stone beetles, all discovered in Egyptian tombs. Near by is a cast of the Rosetta Stone, on which is written in three sets of characters, hieroglyphic, demotic, and Greek, a decree of deification of Ptolemy V Epiphanes, promulgated by an assembly of priests at Memphis. Comparison of the three forms of this decree gave the first clue to the interpretation of Egyptian hieroglyphics. The translation of the Rosetta Stone was published by Champollin in 1824.

A second mummy case which, however, contains no mummy, was purchased in 1896. It is of much more finished and artistic workmanship and is said to have come from Sakkara.

Of further interest in the Egyptian archeological collection are a series of enlarged reproductions in water color of illustrations from Belzoni's work on Egypt¹, representing certain of the mural paintings in the Tombs of the Kings at Thebes. Dr. Manigault describes them as follows:

Plate I. A sitting figure supposed to be one of the kings of Egypt, taken from the tomb of Psammuthis.

Plate II. The upper part represents the Eagle painted on the ceiling of the first passage in the Tomb of Psammuthis; the lower part is a tableau taken from above the door in the Side-board-room of the same tomb.

Plate III. Three human figures in different attitudes representing the tutelary winged goddess Rhea.

Plates VI, VII & VIII. The hawk-headed god Ra, preceded by an Egyptian returned from captivity; then Babylonian, Jewish, and Nubian prisoners taken in foreign wars.

Plate XIX. The King presented to Osiris, attended by the goddess Buto and the hawk-headed god Ra. LAURA M. BRAGG.

¹ London, 1820.

PROCEEDINGS OF THE AMERICAN ASSOCIATION OF MUSEUMS

One of the most interesting accounts of museum work in this country and Europe has recently been published by the American Association of Museums as volume VIII of its *Proceedings*. This Association is organized for the purpose of promoting the general welfare of museums and has had its headquarters at the Charleston Museum for the past eight years. The volume just issued contains the papers and discussions presented at the Milwaukee-Chicago meeting last May. These cover an unusually broad field, and contain much matter of general interest.

The use of museum objects for instruction in the history of civilization was treated by three papers giving the results of a concerted experiment of the American Museum of Natural History, the Children's Museum of Brooklyn, the Children's Museum of Boston, and the Worcester Art Museum. All of these institutions have carried on during the year 1913-14 special educational work along lines laid out by Miss Anna D. Slocum of Jamaica Plain and a special committee of the Woman's Educational Association of Boston. The essential idea underlying this experiment is the feeling that children in the elementary grades need to appreciate more fully the early beginnings of civilization and their relation to modern conditions. To develop this idea definite work was laid out involving the study of the implements and utensils of primitive peoples, and tracing in a broad way the development of modern civilization from these humble beginnings. An effort was made to bring children into contact with and appreciation of the *material life* (food, housing, clothing, means of existence), *psychic life* (games, recreation, fine arts, religion, myths, science), and *social life* (home life, war and commerce, social organization, international organization) of primitive peoples.

The Children's Museum of Brooklyn began with the geology of Long Island as showing how the land was prepared for the

people, and passed to a consideration of the early peoples, savage and civilized, who occupied the island in the early periods of history, leading in this way up to the Dutch rule, British rule, the Revolution, etc.

The Worcester Art Museum endeavored especially to acquaint the children with buildings of different countries and periods by presenting them as expressions of the life and circumstances of the people, and to arouse interest in the buildings in Worcester by showing the traditions by which they were produced.

Story-telling was one of the chief methods of presentation adopted by all of these museums. These papers aroused intense interest among museum workers and will probably lead to more extensive experiments along the same line.

Mr. Edward K. Putnam, acting director of the Davenport Academy of Sciences, presented a general survey of American City Museums with regard to the support afforded them by their municipalities. His paper is an illuminating presentation of the extent to which the museum idea is recognized by city governments throughout the country.

Mr. C. G. Rathmann, assistant superintendent of Schools, and in especial charge of the Educational Museum of the public schools of St. Louis, read a paper on the Museum and the Schools in Europe which brought out in an interesting way the difference in the educational work of museums in this country and abroad. In general, European museums are less advanced in the circulation of traveling exhibits among the schools, but are far in advance of this country in the extent to which the schools visit and study the museums, art galleries, and theaters. They also have school museums of a type which does not exist in the United States. The purpose of these is to help the principal select the proper illustrative material or apparatus for his school, and to furnish teachers with reading matter and exhibits for professional study and cultural improvement.

Mr. Rathmann notes that on a Sunday morning when he visited the Naturgeschichtliche Museum in Vienna he was told at

the office that 10,092 people had passed through the turnstile that morning. Mr. Rathmann concludes that the museums in Europe are nearer to the people of all classes than the museums in America, and that the people have been better trained, through the use of illustrative material, to understand and appreciate what the museums offer. They look upon museums and libraries as a kind of continuation school to which all may go to add to their knowledge and secure information on every subject in which they are interested.

Mr. Edward K. Putnam, of the Davenport Academy of Sciences, presented a second paper on Skansen and the Outdoor Museums of Europe. Skansen is described as "a living illustration of the culture-history of Sweden." It is really a park of high ground, rocky and wooded, in which have been brought together peasant cottages, barns, sheds, windmills, interesting detached belfries, etc. either moved from their original locations throughout Sweden, or built on lines of actual houses. The cottages contain actual furnishings, hangings, and utensils such as thousands of peasants have used and still use, and most interesting of all, these cottages are occupied by peasant families illustrating all types found in Sweden. Special effort is made to celebrate the folk festivals and to keep up the costume dances, children's games, and other features of peasant life in Sweden. People never seem to be satisfied with a single visit to Skansen. Foreigners, tourists, Swedes from other parts of the country and Stockholm come time and time again. The idea of the outdoor museum is spreading through Europe and such institutions either have been established or are contemplated in Holland, Germany, and England.

Mr. E. L. Burchard discussed Civic and Social Museums and Exhibits, emphasizing the necessity of having actual material on an extensive scale for the instruction of children in the complicated problems of civic and social relations. Everyone interested in municipal welfare work, and in the training of better citizens in our public schools, will find Mr. Burchard's discussion

of this subject both illuminating and stimulating.

The scope of these papers, which describe so wide a variety of highly organized museum activities, will be a revelation to those who retain the idea of a museum as nothing but a dead circus.

P. M. REA.

NOTES FROM THE MUSEUM

The Museum is open free to the public on week days from 10 to 6; children unaccompanied by an adult are admitted only on Saturday.

Nearly every member of the Museum staff has spent some time during the summer in the study of other museums. Miss Bragg devoted much of her vacation to botanizing in the vicinity of Portsmouth, N. H., giving special attention to the ferns and fern allies for comparison with southern forms. Before returning to Charleston Miss Bragg spent three weeks studying northern herbaria and visiting museums in the vicinity of Boston, New York, Philadelphia, and Washington. Miss Weeks studied administrative methods of museums in and near New York. Mr. McGrath visited the laboratories of the University of Pennsylvania, and the College of Physicians and Surgeons in New York. Mr. McIntyre made a detailed study of the equipment and methods of the wood-working shops in the museums of New York and Brooklyn.

During the summer the case for the camel group, and the first of a new series of cases for the installation of minerals and other small objects were built in the Museum shop, and another long floor case is now under construction. As soon as plate glass can be provided for these cases a large step forward in the installation of specimens will be possible.

Miss Helen von Kolnitz, a member of the Natural History Society for a number of years, is acting as volunteer assistant in botany, giving two mornings a week to work on the herbarium.

Mr. Edward A. Hyer, a member of the Natural History Society since 1909, is spending a vacation in Charleston. Mr. Hyer is studying taxidermy in the studio of Mr. Carl E. Akeley at the American Museum of Natural History, and will devote a part of his time while in Charleston to renovating some of the larger mammals in the Museum and to building a base for the polar bear group.

The Museum is beginning to circulate among the schools an extensive series of traveling exhibits illustrating materials of commerce and industry. Some account of the rapid growth of the department of public instruction will be given in a later number of the BULLETIN.

MUSEUM CALENDAR FOR NOVEMBER

November 5, Thursday. Regular monthly meeting of the Natural History Society, Section A, at 5 P. M. Mr. E. A. HYER will talk on his experiences in studying taxidermy at the American Museum in New York. Lecture will be illustrated with lantern slides, casts, and models. *A general invitation to be present is extended to all interested.*

November 12, Thursday. Regular monthly meeting of the Natural History Society, Section B. Members who were present at the October meeting will tell about the animals then assigned to each. Mr. JESSE SHARPE will speak on the subject of Local Butterflies and Moths, exhibiting his own beautiful collection. *A general invitation to be present is extended to all boys and girls interested.*

November 16, Monday. Botany class at the Museum at 5 P. M. *Open to members of Section A.*

November 26, Thursday. Thanksgiving Day field trip for Section A to Fenwick Hall. Particulars may be learned at November meeting. *Open to members only.*

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OF
THE CHARLESTON MUSEUM

EDITED BY
PAUL M. REA

OCTOPUS AND ITS RELATIVES
THE NEW MEDICAL COLLEGE
NATURAL HISTORY SOCIETY
CALENDAR FOR DECEMBER

Volume X, Number 7

NOVEMBER, 1914

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

Director

PAUL M. REA

Honorary Curators

WM. G. MAZYCK.....	<i>Conchology</i>
DANIEL S. MARTIN.....	<i>Geology</i>
ARTHUR T. WAYNE.....	<i>Ornithology</i>
NATHANIEL W. STEPHENSON.....	<i>Art</i>
EDWARD R. MEMMINGER.....	<i>Fungi</i>

Curator of Books and Public Instruction

LAURA M. BRAGG

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OF

THE CHARLESTON MUSEUM

VOL. 10 CHARLESTON, S. C., NOVEMBER, 1914 No. 7

OCTOPUS AND ITS RELATIVES

An interesting Octopus referred by Mr. William G. Mazyck to *Polypus granulatus* was presented to the Museum by Mr. Ashley Halsey on October 14. It was taken in a locality known as Barshell near the Whistling Buoy south of the Jetties, in about 30 feet of water. This specimen came to the Museum alive and after being kept under observation for a time was preserved in the permanent collection.

The Octopus is a rare form in the vicinity of Charleston, only one species being recorded in Mazyck's Catalog of the Mollusca of South Carolina. It belongs to the group of cephalopod molluscs more commonly represented in these waters by the common squid, which differs from the Octopus in having ten arms instead of eight. Readers of the BULLETIN may remember that in 1911 the Museum obtained from the Isle of Palms an unusually large squid, measuring eighteen inches over the body and four feet over the tentacles, which was tentatively referred to *Loligo gahi*. Neither of these specimens is suited for exhibition purposes, but the group to which they belong is of such interest that some further account may not be amiss.

The class cephalopoda is not only the highest among the mollusca but in many respects among all the invertebrate animals.

In fact the cephalopods and some of the social insects may be said to form the two culminating points of invertebrate development. The insects are interesting chiefly for the complexity of their instincts and social life, while the cephalopods are remarkable for the perfection of their physical structure. They have had an unusually long geological history, their remains being found in rocks of every period since the Cambrian, when they were probably masters of the sea, exceeding in size and activity all other living animals. Again in the Cretaceous they were represented by a wonderful variety of large species, although by this time the sea and land were dominated by vertebrate animals of a much higher type. Today the more ancient division of the cephalopods is represented by but a single living genus, the Pearly Nautilus. This form is well known from the external shell which envelops the body and which is susceptible of high polish. The Pearly Nautilus lives in the Pacific Ocean in the vicinity of Japan and the Philippines, but is decreasing in numbers and will probably become extinct in the comparatively near future.

Another cephalopod frequently confused with Nautilus but not in any way closely related to it is the so-called Paper Nautilus. This form has a thin shell bearing a general resemblance to that of Nautilus, but is carried by the female only and is used as a brood pouch for the care of the young. The scientific name of this form is *Argonauta*, a term which avoids confusion with Nautilus and refers to the animal's habit of sailing with the aid of its light shell along the surface of the water.

The cephalopods are divided into two groups, the dibranchs and the tetrabranchs, according as they have two gills or four. Nautilus is the only living tetrabranch. The dibranchs are in turn divided into octopods and decapods, according as they have eight arms or ten. Octopus has always been a synonym for all that is grasping, little distinction being popularly made between the forms with eight arms and those with ten. The arms in question are really tentacles springing in a circle around the mouth

and armed with many strong suckers. Wonderful tales and even pictures have come down to us from early times describing most marvelous encounters with giant animals of this type. The pictures show a ship being attacked by an Octopus, which winds some of its tentacles around the topmasts while others encircle the hull of the ship and pick off the frightened sailors at leisure. Even though the ships of those days were much smaller than ours of the present these early accounts must be taken with some allowance for a vivid imagination. Yet it is a fact that there does exist at the present time a species of giant squid measuring as much as twenty feet over the body and more than fifty feet over the tentacles. These squids live in the deeper parts of the ocean and are seldom seen by man. In a few instances they have attacked fishermen's dories and given the occupants a lively tussle. Only about twenty-five of these giant squids have ever been reported on the Atlantic Coast but that they must be more numerous in the deeper parts of the ocean is indicated by the fact that their strong beaks are commonly found in the stomachs of sperm whales.

The smaller squids, such as occur so abundantly on our own coast, inspire none of the awe which may well be associated with the giant squid, but if watched closely under favorable conditions will prove to be unusually interesting and beautiful objects. Their bodies in life are almost transparent and covered with chromatophores of various colors. As different sets of these expand and contract most delicate blushes of color sweep swiftly over the surface of the body, giving it a most illusive appearance.

When a squid is pursued by a fish it has another and more effective means of protection in the form of an inky fluid which it squirts into the water at will. This ink diffuses rapidly and leaves a dense cloud which blinds the pursuing fish and enables the squid to dodge away in safety. The squid swims by a most peculiar contrivance. Water is drawn into a space between the body and the enveloping mantle and then forcefully expelled through a funnel-like tube. The force of this stream thrusts

the squid backwards much as a gun kicks against the shoulder. By turning the funnel one way or another the direction of movement can be controlled.

The eyes of the squid are among its most conspicuous and interesting features, resembling in a most remarkable way the eyes of vertebrate animals. Close examination, however, discloses the fact that these two types of eye, although similar in appearance, are built up in an entirely different manner. Such a superficial resemblance between structures is termed analogy in contrast to the fundamental identity of such structures as the limbs of the bird, bat, porpoise, horse, sloth, and man, which is called homology.

Unlike Nautilus, the squid has no external shell but underneath the skin is to be found a stiffening rod having much the form of a quill pen. One may thus draw pictures or write letters with squid "ink" and a squid "pen." Most remarkable of all, this is even possible with the ink and pen of fossil squids which lived millions of years ago. The ink of cephalopods varies somewhat in color, that of the genus *Sepia* explaining the origin of the water color of that name. The internal shell also varies and in one genus, the so-called cuttlefish, takes the form of a broad and rather thick, spongy structure which is familiar to all of us as the cuttle bone so commonly fed to canaries.

These are but a few of the natural history features of a single class of the great phylum of the mollusca. Some of the other classes are just as varied in form and habits and a survey of the group as a whole tempts one to feel that it is the most interesting of all the invertebrate series. Other phyla, however, prove just as fascinating when we really make their acquaintance and the one that seems most interesting is usually the one we happen to be studying at the time.

P. M. REA.

THE NEW MEDICAL COLLEGE

On November 18 the people of Charleston formally transferred to the state the new building erected opposite the Roper Hospital for the Medical College of the State of South Carolina. We extend to the College, which is one of our affiliated institutions, our heartiest congratulations on this crowning achievement of its recent re-organization.

The Medical College is one of the oldest in the United States, having been founded in 1823. In 1913 the State Legislature accepted the College as a state institution and assumed the expense of its maintenance. The people of Charleston, as an evidence of their interest in the College and their appreciation of its support by the Legislature, subscribed in six days the sum of \$76,000, including a lot of land donated by City Council, for the purpose of erecting a new building to be presented to the state as a free will offering.

The new building is of attractive design and is favorably situated with reference to the Hospital, and only two blocks from the Museum. It affords every facility for medical work of the most modern type and has been equipped by the Trustees with furniture and apparatus abundantly meeting all needs.

During the past two years the College has raised its entrance requirements to include one year of college work and has greatly enlarged its faculty, ten members of which give their full time to instruction in the scientific branches of the first two years. We know of no other institution which has achieved so remarkable a re-organization in so short a time—a re-organization not merely in control, administration, financial support, and material equipment, but in the spirit of the faculty and students as shown in the class room.

The College has the loyal support of the medical profession and the cordial interest of the people throughout the state.

NATURAL HISTORY SOCIETY

Section A of the Natural History Society held its first meeting since the summer vacation on November 5. The officers of the previous year were re-elected and Major Philip P. Mazyck was elected an honorary member in appreciation of his interest and helpfulness in many activities of the Society. A large audience enjoyed Mr. Edward A. Hyer's lecture on Modern Taxidermy. The subject was illustrated with lantern slides showing the successive steps in the process of mounting animals for exhibition and a high tribute was paid to the work of Mr. Carl E. Akeley in developing taxidermy as an art.

In place of the usual Thanksgiving Day trip Section A went by launch on Saturday, November 21, to visit Fenwick Hall. This is one of the finest Pre-revolutionary houses now standing in the vicinity of Charleston. It is unusually spacious and of interesting architectural design. Although in a dilapidated condition it still gives a fair idea of what plantation life must have been in Colonial days.

At the next meeting of Section A, on December 3, Director Rea, will discuss the development of animals, using a series of colored wax models which were received from Germany in September. These models were ordered last February and after a month of the European war all hope of receiving them this year was given up. Their arrival in September, however, indicates that they must have been shipped either just before or soon after the outbreak of hostilities. Embryology is the most wonderful and in many ways the most interesting of all biological processes, and the lecture will describe in an untechnical way the steps by which fishes, frogs, and birds are developed from simple eggs.

Section B met on October 8 and November 12. The October meeting was devoted to discussion of plans for the winter's work, while at the November meeting Mr. Jesse Sharpe talked on Common Butterflies and Moths, using his own collection for illustration. Some of the boys and girls of Section B have been de-

voting much interest to the study of butterflies, and in their field trips have secured a number of excellent specimens for the Museum collection and for the traveling school exhibit. With the assistance of Mr. Sharpe they have learned to mount their specimens properly. The best examples of their work are exhibited in a special case in the reading room. A butterfly cage in the window has enabled the children to study living butterflies at close range and to watch their transformation from caterpillars to chrysalids and from chrysalids to butterflies.

Other members of Section B have been helping Mr. Hyer clean the fur of the grizzly, cinnamon, and black bears in preparation for exhibition. Mr. Hyer's work on the polar bear group is nearing completion as we go to press.

Bird study constitutes an important part of the work of this Section, as usual. Mr. Caspar Chisolm will teach a class of boys how to prepare bird skins, and both boys and girls are to build bird houses and set them up in preparation for spring.

Miss Bragg will be at the Museum every Friday afternoon, ready to assist all members of Section B in their nature study interests.

Section B elected the following officers for the ensuing year: Vice-president, James Sprunt; Corresponding Secretary, Frances Moorhead; Recording Secretary, Alice Wagener. This Section is growing rapidly and now numbers forty members after graduating three into Section A.

Attention is called to the change in the time of Section B meetings from 5 to 4.30 o'clock until the days become longer.

MUSEUM CALENDAR FOR DECEMBER

December 3, Thursday. Regular monthly meeting of the Natural History Society, Section A, at 5 P. M. DIRECTOR REA will speak on Embryology, illustrating his lecture with colored wax models showing the development of the fish, frog, and chick from the egg. *A general invitation to be present is extended to all interested.*

December 4, Friday. First class in bird skinning will meet at the Museum at 4 P. M. under the direction of MR. CASPAR CHISOLM. *Open only to boys of Section B who join the class before its first meeting.*

December 5, Saturday. Field trip to the Navy Yard for the study of trees and shrubs of the pine barrens. The party will start on the Navy Yard car leaving the Battery at 9.15 A. M. and will return at 2.45 P. M. *Open to girls of Section B only.*

December 10, Thursday. Regular monthly meeting of the Natural History Society, Section B, at 4.30 P. M. *A general invitation to be present is extended to all boys and girls interested.*

December 11, Friday. The class in bird skinning will meet at the Museum at 4 P. M. under the direction of MR. CASPAR CHISOLM. *Open only to boys of Section B who join the class before its first meeting.*

December 18, Friday. The class in bird skinning will meet at the Museum at 4 P. M. under the direction of MR. CASPAR CHISOLM. *Open only to boys of Section B who join the class before its first meeting.*

The Charleston Museum

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PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distribution, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

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PROGRESS IN SCHOOL WORK
CALENDAR FOR JANUARY

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PROGRESS IN SCHOOL WORK

The BULLETIN for December, 1912, printed an article entitled: What the Museum Offers the Schools. In it was outlined the scope of the work which the Museum was then prepared to carry on with the schools of Charleston. This work has grown to such proportions that a report of progress seems desirable.

Nature study was introduced into the primary grades of the Charleston Public Schools in the autumn of 1912. A course of study had been prepared by the supervisor of primary work and myself, and the Museum began the circulation of a series of traveling school exhibits to illustrate the subject treated. The course itself was designed to correlate largely with the work already done in the schools and to serve as an aid rather than an added burden to the teacher. The success of the new study was assured through the earnest work of the teachers themselves, who during 1912 and 1913 frequently met at the Museum for lectures on the course. There was never any question as to its success with the children; as teachers are constantly telling me "They simply love it." One teacher reports that a little feeble-minded boy in her room, though utterly uninterested in the regular school work, is continually asking her to "tell about the Redbird" or whatever the nature exhibit for the week may be.

The children's interest is further shown by the increasing numbers who come to the Museum, often with the announcement that "teacher" told them to come. Joining a group of small boys and girls one morning, I was greeted enthusiastically with "We've got a Bluebird at our school teacher says you sent us, a father and a mother bird." Here a scornful voice broke in "That ain't nothin'. We got a mother bat and three babies and she flies with 'em". The advantage being obviously on the side of the bat, I hastened to reinstate the Bluebird by leading the children to its nest and pointing out its beautiful blue eggs. No small boy can resist the appeal of an egg, though sadly we must admit he generally wants to possess it, and is slow to appreciate the ethics which decree it right for the Museum to collect but wrong for him to do so.

Besides the traveling exhibits the Museum deposits annually in each school what is known as a Picture Envelope. At first these envelopes contained pictures only, but now they include also typewritten information for the teacher on subjects outlined in the nature study course but not illustrated by traveling exhibits. The preparation of "teacher's stories," study outlines, and descriptive labels for the exhibits has been a very useful and important though inconspicuous accomplishment of the past few months. Previously instruction had been given to teachers by means of lectures.

Material not suitable for traveling exhibits is frequently distributed. Quantities of tadpoles, frogs, and toads have been supplied to both public and private schools. Native broomgrass was sent out this year at Hallowe'en and was transformed by the children into brooms for the witches. Occasionally specimens from the Museum's general collections are lent, particularly to teachers of intermediate grades for which the Museum as yet provides no regular exhibits.

In some schools these teachers borrow the primary exhibits and one principal tells me that he sends each nature study exhibit through every grade, after first carefully studying it himself.

All of which makes clear the urgent need for further development.

Until the introduction of the nature study course the Museum's work with the schools had been done entirely at the Museum. By sending exhibits to the schools it has been found that vastly larger numbers can be reached, directly at the schools and indirectly through the interest aroused which attracts more children to the Museum. The number of teachers bringing classes has also increased, and advantage has been taken of educational facilities at the Museum to a much greater degree. The possibilities for work are now restricted only by the limitations imposed by the smallness of the staff and the necessities of the general work of the Museum.

The traveling school exhibits had been devoted almost exclusively to the nature study work of the primary grades up to the opening of the current school year. At that time twenty-four commercial exhibits, especially prepared for the illustration of sixth and seventh grade geography courses, were put in circulation. These exhibits are listed below as exhibits numbers 32-55. The range of subjects is seen to be broad. Each exhibit consists of descriptively labeled objects telling a story of production and use. Photographs and a map showing distribution are added in most cases. The cotton exhibit for example, includes a mounted spray of the cotton plant showing the blossom and boll, samples of unginced cotton, ginned upland cotton, ginned sea-island cotton, Peruvian cotton, cotton roving, cotton yarn, sewing thread, muslins, calico, gingham, mercerized cotton cloth, cotton linters, and rope. Cotton seed products are shown in the form of cotton seed oil, oil cake, and oil foots soap. Celluloid as a by-product of cotton has come as a surprise to many teachers as well as pupils. A map indicating the world's cotton-producing countries and a set of photographs showing the picking, ginning, and marketing of the crop complete the exhibit. The descriptive matter is ample and supplies what cannot be illustrated.

While the commercial exhibits are primarily for higher grade

work, teachers of younger children are making excellent use of them. I cannot resist giving here a composition written for language work by a six-year-old second grade boy in one of the private schools. The class had spent an absorbing quarter of an hour over the Cocoanut Exhibit and the resulting compositions showed considerable diversity in the ideas absorbed. No change of spelling or punctuation has been made in the one here produced:

"The cocoa nut has milk in it.

The cocoa nut is used for oil.

Shredded cocoa nut you by in the store.

The fiber of the cocoa nut is used for brushes, and doormats.

The oil of the cocoa nut is used for soap, and candles and cooking.

The cocoa nut groes near the shore.

It is used for many things."

Two years ago the traveling exhibits numbered twenty-five. The following is a list of those now in circulation:

- 1-6. Picture envelopes for deposit in public schools, each at present containing 37 mounted pictures, a series of blueprints of leaves, and descriptive material.
7. Mockingbird.
8. Bluebird. Male and female.
9. Bluebird. Male and female.
10. Redwinged Blackbird. Male and female.
11. Painted Bunting or Nonpareil. Male and female.
12. Painted Bunting or Nonpareil. Male and female.
13. Redwinged Blackbird. Male and female.
14. Meadowlark.
15. Mockingbird.
16. Cardinal or Redbird. Male and female.
17. Meadowlark.
18. Brown Rat and Red Mouse.
19. Hoary Bat.
20. Red Bat. Female and three young.
21. Lion Cub.
22. Southern Fox Squirrel.
23. Iron and steel. Elaborately worked out for seventh and eighth grades.

24. Beach Life, Part 1. Includes sand, seaweeds, sponges, colonial bryozoa, corals, starfish, sea-urchins, and sea-biscuits.
25. Beach Life, Part 2. Includes crabs, barnacles, and shells.
26. Swamp Rabbit.
27. Orchard Oriole. Male, female, young male, nest, and eggs.
28. Chimney Swift. Adult bird, nest, and eggs.
29. Crow.
30. Blue Jay.
31. Wasps. Nest of Paper Wasps and Dirt Daubers.
32. Grains. Showing raw and manufactured products of common grains not separately exhibited.
33. Wheat.
34. Corn.
35. Rice.
36. Sugar. Illustrates different kinds of sugar, their sources and manufacture.
37. Beverages. Treats of tea, coffee, cocoa, and Paraguay tea.
38. The Cow. Shows utilization of the cow for food, leather, buttons, glue, etc.
39. The Sheep. Shows utilization for food, woolen goods, leather, catgut, and tallow.
40. Silk. Illustrates life-history of the mulberry silkworm, and the story of silk production and manufacture, including artificial silk adulteration.
41. Cotton. Described above.
42. Flax. Shows the production of linen, linen paper, linoleum, and linseed oil from the flax plant.
43. Cocoanut. Shows the many various uses of the cocoanut palm for food, building purposes, lubrication, fabrics, fertilizer, etc.
44. Rope Fibers. Gives story of conversion of sisal, manila hemp, hemp, and jute into rope.
45. Brush Fibers. Illustrates the many sources of material for brushes, including plants, animals, and steel.
46. Paper. Shows how paper is produced from papyrus, rice, paper mulberry tree, rags, wood, straw, jute, esparto grass, etc.
47. Spices. Includes peppers, allspice, cloves, nutmegs, mace, mustard, cinnamon, cassia, vanilla, vanillon, caraway, turmeric powder, and ginger.
48. Insect Products. Treats of honey, Chinese blistering

- beetles, shellac and sealing wax, oak galls, and cochineal insects.
49. Rubber. Shows five sources of true rubber, rubber substitutes, and products of both.
 50. Gums and Resins. Includes gum arabic, tragacanth, seaweed gelatine, catechu, turpentine, copal, gum dammar, olibanum, myrrh, gamboge, tolu balsam, aloes, and asafoetida.
 51. Carbon. Gives the story of peat, lignite, coal, coal tar, aniline dyes, petroleum and kerosene, lubricating oil, paraffine, naphthaline, creosote, charcoal, graphite, and asphalt.
 52. Useful Non-metallic Minerals. Minerals used for pottery, glass materials, fertilizers, abrasives, etc.
 53. Ores and Metallic Minerals. Mining and uses of commonest forms except iron.
 54. Iron. Tells the story of the mining and manufacture of iron in less detail than exhibit No. 23.
 55. Building Stones. Gives examples of the marbles, granites, and sandstones most used in the United States, together with clay and cement products, quicklime, slate for roofing, etc.
 - 56-57. Foreign and Native Woods. In preparation.
 58. Butterflies. Common local species.
 59. Moths. Life-history of Cecropia and Io moths.
 60. Rock Types. Classified according to Tarr's New Physical Geography, for use with high school classes.
 - 61-62. Blueprints of leaves of live oak, water oak, turkey oak, and elm. For circulation to private schools only.
 63. Babylonian Clay Tablets. Five examples of cuneiform writing.

Stereoscopic slides illustrating any of the following subjects will be lent with stereoscopes: Grand Canon of Arizona, Yosemite Valley, Yellowstone Park, Niagara Falls, Norway, Switzerland, glaciers, mountains, rock formations, volcanoes, caves, and miscellaneous scenes from various countries.

When first introduced the traveling exhibits were circulated among only the six public graded schools of the city, the schools themselves sending for the exhibits. Private teachers borrowed occasionally. As the work grew it became necessary for the Museum to assume responsibility for transportation. This

year delivery of exhibits to all schools, public and private, is made by the Museum free of charge. Exhibits left one Monday morning may be kept until the next. Regular schedules are followed, these being arranged by the schools, and by the Museum's curator of public instruction, under whose direction the work is carried on.

The number of schools receiving the exhibits has grown to cover nearly all in Charleston. Outside of Charleston plans are now being made for their circulation through the schools of Charleston County, and a schedule for the Beaufort Public School has recently been put in operation. Very few exhibits are ever idle, in fact the demand for the nature exhibits in primary grades is greatly in excess of the supply.

The Charleston schools which are now using the exhibits, or are to begin doing so in January, are as follows:

Public—Crafts, Bennett, Courtenay, Shaw, Mitchell, Colored Industrial, Simonton, Memminger Normal, and Charleston High Schools.

Private—St. Luke's Parish School, West Side Kindergarten, Ashley Hall, Porter Military Academy, University School, Confederate Home College, and the schools of Miss Louise Smith, Miss Rebecca Motte Frost, Miss Louisa FitzSimons, the Misses Sass, the Misses Bacot and Barnwell, the Misses Gibbes, Miss Mary McGee, and Miss Williams.

Teachers in private schools frequently tell me that they wish to use the traveling exhibits because their children hear about them through public school pupils and ask why they don't have them. As one teacher put it, "I've had to take up nature study in self-defense." Numbers of the private primary teachers use the nature study course in modified form, being unable to get the exhibits at the seasons they are on schedule for public schools.

In October eight of the bird exhibits were sent to the State Fair at Columbia.

Several lectures have been given at schools during the past year. Director Rea spoke at the Memminger Normal School on The Value of Science in the School Curriculum and in Life,

and I have talked at Mitchell School and at the Public School of Beaufort on the South Carolina Birds, using in illustration colored lantern slides of fifteen of the habitat groups of birds in the American Museum. This bird lecture I have also delivered at the Museum for several schools.

Informal talks to classes in the main hall are constantly given. Beside those seeking general information classes from Memminger Normal School and Ashley Hall have come to study the stone age, Egyptian archeology, and squirrels. A demand for archeological material has led to a study of the Museum's resources, and the collections are now being systematized and prepared for exhibition.

The advance made in the work of the Museum in its relation to schools is to be estimated not only by the great extension of the actual work accomplished but also by the entire change in attitude of both public and private schools. Two years ago the schools looked askance at the Museum's offers of assistance. The eagerness with which its exhibits are now sought undoubtedly signifies that its resources will be severely taxed to keep pace with the awakened interest which it has created.

Laura M. Bragg.

MUSEUM CALENDAR FOR JANUARY

January 7, Thursday. Regular monthly meeting of the Natural History Society, Section A, at 5 P. M. Director Rea will speak on Heredity. *A general invitation to be present is extended to all interested.*

January 11, Monday. Bird study class at the Museum at 4.30 P. M. Subject: Local Winter Visitants. *Open to members of Section A.*

January 14, Thursday. Regular monthly meeting of the Natural History Society, Section B, at 4.30 P. M. *A general invitation to be present is extended to all boys and girls interested.*

January 15, 22, 29. Class for construction of bird houses at the Museum at 4 P. M. *Open to all members of Section B.*

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

PUBLICATIONS

(1) The BULLETIN OF THE CHARLESTON MUSEUM is published monthly from October to May, each number consisting of eight to sixteen pages. This is a popular record of the work of the Museum, containing accounts of its educational activities, descriptions of exhibits, and preliminary notices of investigations. Important records of geographical distribution, and working lists of the local fauna and flora are often published first in the BULLETIN. The January issue of each year is devoted to the annual report of the director of the Museum.

Volume I of this series began in April, 1905, and is complete in 5 numbers. Subsequent volumes consist of 8 numbers each. A title page and index to the first five volumes was published in the issue of December, 1909.

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(2) CONTRIBUTIONS FROM THE CHARLESTON MUSEUM are issued at irregular intervals, and consist of research papers too long or too important for publication in the BULLETIN.

I Birds of South Carolina, by Arthur Trezevant Wayne.
Pp. XXI + 254. Price: paper, \$2.75; cloth, \$3.25.

II Catalog of the Mollusca of South Carolina, by William G. Mazjck. Pp. XVI + 39. Price: paper, 50 cents.

III Birds of the City of Charleston, by Herbert Ravenel Sass. *In preparation.*

